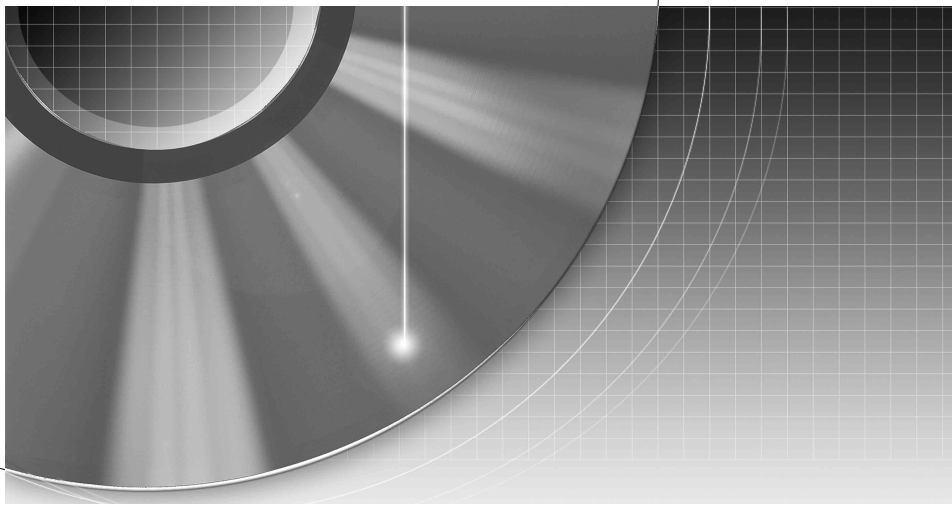
SONY

3-210-862-**41**(1)



DVD Recorder

Operating Instructions

RDR-HX750

DVD+ReWritable VIDEO/R/RW COMPACT DISC DIGITAL VIDEO HDMI BRAVIA Theatre Sync

© 2007 Sony Corporation

WARNING

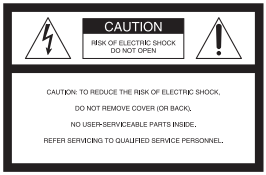
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
The AC power cord must be changed only at a qualified service shop.
Do not expose the battery to excessive heat such as direct sunlight, fire or the like.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this DVD recorder is harmful to eyes, do not attempt to disassemble the cabinet.
Refer servicing to qualified personnel only.

CAUTION	CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO THE BEAM.
VORSICHT	KLASSE 3B SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN GEÖFFNET. DIREKTEN KONTAKT MIT DEM STRAHL VERMEIDEN.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING AF KLASSE 3B VED ÅBNING. UNDGÅ DIREKTE UDSÆTTELSE FOR STRÅLING.
ADVARSEL	SYNLIG OG USYNLIG LASERSTRÅLING I KLASSE 3B NÅR DEKSEL ÅPNES. UNNGÅ DIREKTE EKSPONERING FOR STRÅLEN.
VARNING	KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT DIREKT EXPONERA DIG FÖR STRÅLNINGEN.
VARO!	AVATTUNA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSÄTEILYÄ. VÄLTÄ SUORAA ALTISTUMISTA SÄTEELLE.

This label is located on the laser protective housing inside the enclosure.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precaution

Install this system so that the AC power cord can be unplugged from the wall socket immediately in the event of trouble.

Precautions

This equipment has been tested and found to comply with the limits set out in the EMC Directive using a connection cable shorter than 3 meters.

On safety

Should any solid object or liquid fall into the cabinet, unplug the recorder and have it checked by qualified personnel before operating it any further.

About the hard disk drive

The hard disk has a high storage density, which enables long recording durations and quick access to the written data. However, it can easily be damaged by shock, vibration or dust, and should be kept away from magnets. To avoid losing important data, observe the following precautions.

- Do not apply a strong shock to the recorder.
- Do not place the recorder in a location subject to mechanical vibrations or in an unstable location.
- Do not place the recorder on top of a hot surface, such as a VCR or amplifier (receiver).
- Do not use the recorder in a place subject to extreme changes in temperature (temperature gradient less than 10 °C/hour).
- Do not move the recorder with its AC power cord connected.
- Do not disconnect the AC power cord while the power is on.
- When disconnecting the AC power cord, turn off the power and make sure that the hard disk drive is not operating (the clock is displayed in the front panel display for at least 30 seconds and all recording or dubbing has stopped).
- Do not move the recorder for one minute after you have unplugged the AC power cord.

- Do not attempt to replace or upgrade the hard disk by yourself, as this may result in malfunction.

If the hard disk drive should malfunction, you cannot recover lost data. The hard disk drive is only a temporary storage space.

About repairing the hard disk drive

- The contents of the hard disk drive may be checked in case of repair or inspection during a malfunction or modification. However, the contents will not be backed up or saved by Sony.
- If the hard disk needs to be formatted or replaced, it will be done at the discretion of Sony. All contents of the hard disk drive will be erased, including contents that violate copyright laws.

On power sources

- The recorder is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use the recorder for a long time, be sure to disconnect the recorder from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.

On placement

- Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder.
- Do not place the recorder on a soft surface such as a rug that might block the ventilation holes.
- Do not place the recorder in a confined space such as a bookshelf or similar unit.
- Do not place the recorder in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.
- Do not place the recorder in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the recorder and discs away from equipment with strong magnets, such as microwave ovens, or large loudspeakers.
- Do not place heavy objects on the recorder.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.

On recording

Make trial recordings before making the actual recording.

On compensation for lost recordings

Sony is not liable and will not compensate for any lost recordings or relevant losses, including when recordings are not made due to reasons including recorder failure, or when the contents of a recording are lost or damaged as a result of recorder failure or repair undertaken to the recorder. Sony will not restore, recover, or replicate the recorded contents under any circumstances.

Copyrights

- Television programs, films, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.
- This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.
- This Product includes FontAvenue® fonts licenced by NEC corporation. FontAvenue is a registered trademark of NEC corporation.

Copy guard function

Since the recorder has a copy guard function, programs received through an external tuner (not supplied) may contain copy protection signals (copy guard function) and as such may not be recordable, depending on the type of signal.

IMPORTANT NOTICE

Caution: This recorder is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Plasma display panels and projection televisions are especially susceptible to this.

If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

About this manual

- In this manual, the internal hard disk drive is written as "HDD," and "disc" is used as a general reference for the HDD, DVDs, or CDs unless otherwise specified by the text or illustrations.
- Icons, such as DVD, listed at the top of each explanation indicate what kind of media can be used with the function being explained.
- Instructions in this manual describe the controls on the remote. You can also use the controls on the recorder if they have the same or similar names as those on the remote.
- The on-screen display illustrations used in this manual may not match the graphics displayed on your TV screen.
- The explanations regarding DVDs in this manual refer to DVDs created on this recorder. The explanations do not apply to DVDs that are created on other recorders and played back on this recorder.

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Quick Guide to Disc Types

Recordable and playable discs

Type		Disc Logo	Icon used in this manual	Formatting (new discs)	Compatibility with other DVD players (finalizing)
Hard disk drive (internal)	VR mode	HDD	HDD	Select "Video Mode Off" in "HDD Recording Format" (page 109).	Dub HDD contents to a DVD (VR mode) to play on other DVD players
	Video mode			Select "Video Mode On" (default) in "HDD Recording Format" (page 109).	Dub HDD contents to a DVD (Video mode) to play on other DVD players
DVD+RW		DVD+ReWritable DVD+ReWritable High Speed	+RW	Automatically formatted in +VR mode (DVD+RW VIDEO)	Playable on DVD+RW compatible players (automatically finalized)
DVD-RW	VR mode	DVD RW	-RWVR	Format in VR mode (page 30)	Playable only on VR mode compatible players (finalization unnecessary)
	Video mode	DVD RW RW 2	-RWVideo	Format in Video mode (page 30)	Playable on most DVD players (finalization necessary) (page 39)
DVD+R DVD+R DL		DVD+R DVD+R DL	+R	Automatically formatted in +VR mode (DVD+R VIDEO)	Playable on most DVD players (finalization necessary) (page 39)
DVD-R	VR mode	DVD R R4.7	-RVR	Format in VR mode (page 30)*1 Formatting is performed in the "Format" setup (page 42).	Playable only on DVD-R in VR mode compatible players (finalization necessary) (page 39)
DVD-R DL	Video mode	DVD R R DL 4X/2X	-RVideo	Automatically formatted in Video mode	Playable on most DVD players (finalization necessary) (page 39)

➡continued

Usable disc versions (as of April 2007)

- 8x-speed or slower DVD+RWs
- 6x-speed or slower DVD-RWs (Ver.1.1, Ver.1.2 with CPRM[*2])
- 16x-speed or slower DVD+Rs
- 16x-speed or slower DVD-Rs (Ver.2.0, Ver.2.1 with CPRM[*2])
- 8x-speed or slower DVD+R DL (Double Layer) discs
- 8x-speed or slower DVD-R DL (Dual Layer) discs (Ver.3.0 with CPRM[*2])

"DVD+RW," "DVD-RW," "DVD+R," "DVD+R DL," "DVD-R," and "DVD-R DL" are trademarks.

[*1] When an unformatted DVD-R is inserted into this recorder, it is automatically formatted in Video mode. To format a new DVD-R in VR mode, format in the "Format" setup (page 42).

[*2] CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

Discs that cannot be recorded on

- DVD-RAMs

Playable discs

Type	Disc Logo	Icon used in this manual	Characteristics
DVD VIDEO		DVD	Discs such as movies that can be purchased or rented This recorder also recognises DVD-RAMs* as DVD Video compatible discs.
VIDEO CD		VCD	VIDEO CDs or CD-Rs/CD-RWs in VIDEO CD/Super VIDEO CD format
CD		CD	Music CDs or CD-Rs/CD-RWs in music CD format
DATA DVD	—	DATA DVD	DVD+RWs/DVD+Rs/DVD-RAMs* containing MP3 audio tracks or DivX video files DVD-RWs/DVD-Rs/DVD-ROMs containing MP3 audio tracks, JPEG image files or DivX video files
DATA CD	—	DATA CD	CD-ROMs/CD-Rs/CD-RWs containing either MP3 audio tracks, JPEG image files or DivX video files

"DVD VIDEO" and "CD" are trademarks.

DivX, DivX Certified, and associated logos are trademarks of DivX, Inc. and are used under license.
DivX® is a video file compression technology, developed by DivX, Inc.

* If the DVD-RAM has a removable cartridge, remove the cartridge before playback.

Discs that cannot be played

- PHOTO CDs
- CD-ROMs/CD-Rs/CD-RWs that are recorded in a format different from the formats mentioned in the table above.
- Data part of CD-Extras
- BDs
- HD DVDs
- Discs recorded with an AVCHD-compatible DVD video camera
- DVD-ROMs/DVD+RWs/DVD-RWs/DVD+Rs/DVD-Rs that do not contain DVD Video, DivX video, JPEG image files, or MP3 audio tracks.
- DVD Audio discs
- Cartridge-only type DVD-RAMs.
- HD layer on Super Audio CDs
- DVD VIDEOs with a different region code (page 12).
- DVDs that were recorded on a different recorder and not correctly finalized.

Maximum recordable number of titles

Disc	Number of titles
HDD*	999
DVD-RW/DVD-R	99
DVD+RW/DVD+R	49
DVD+R DL	49
DVD-R DL	99

* The maximum length for one title is 12 hours.

Note on playback operations of DVD VIDEOs/VIDEO CDs

Some playback operations of DVD VIDEOs/VIDEO CDs may be intentionally set by software producers. Since this recorder plays DVD VIDEOs/VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. See the instructions supplied with the DVD VIDEOs/VIDEO CDs.

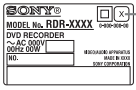
Region code (DVD VIDEO only)

Your recorder has a region code printed on the rear of the unit and will only play DVD VIDEOs (playback only) labeled with identical region codes. This system is used to protect copyrights.

DVD VIDEOs labeled will also play on this recorder.

If you try to play any other DVD VIDEO, the message “Playback prohibited by region code.” will appear on the TV screen.

Depending on the DVD VIDEO, no region code indication may be labeled even though playing the DVD VIDEO is prohibited by area restrictions.



Region code

Music discs encoded with copyright protection technologies

This product is designed to play back discs that conform to the Compact Disc (CD) standard.

Recently, various music discs encoded with copyright protection technologies are being marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on DualDiscs

A DualDisc is a two sided disc product which mates DVD recorded material on one side with digital audio material on the other side. However, since the audio material side does not conform to the Compact Disc (CD) standard, playback on this product is not guaranteed.

Notes

- Some DVD+RWs/DVD+Rs, DVD-RWs/DVD-Rs, DVD-RAMs, or CD-RWs/CD-Rs cannot be played on this recorder due to the recording quality or physical condition of the disc, or the characteristics of the recording device and authoring software. The disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device.
- You cannot mix VR mode and Video mode on the same DVD-RW. To change the disc’s format, reformat the disc (page 42). Note that the disc’s contents will be erased after reformatting.
- You cannot shorten the time required for recording even with high-speed discs.
- It is recommended that you use discs with “For Video” printed on their packaging.
- You cannot add new recordings to DVD+Rs, DVD-Rs, or DVD-RWs (Video mode) that contain recordings made on other DVD equipment.
- In some cases, you may not be able to add new recordings to DVD+RWs that contain recordings made on other DVD equipment. If you do add a new recording, note that this recorder will rewrite the DVD menu.
- You cannot edit recordings on DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs that are made on other DVD equipment.
- If the disc contains PC data unrecognizable by this recorder, the data may be erased.
- You may not be able to record, edit, or dub on some recordable discs, depending on the disc.
- Do not insert any discs that cannot be recorded or played on this recorder. This may cause the recorder to malfunction.

Hooking Up the Recorder

Follow steps 1 through 6 to hook up and adjust the settings of the recorder. Do not connect the AC power cord until you reach "Step 4: Connecting the AC Power Cord" on page 21.

Notes

- See "Specifications" (page 123) for a list of supplied accessories.
- Plug in cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.
- You cannot connect this recorder to a TV that does not have a video input jack.
- Be sure to disconnect the AC power cord of each component before connecting.

Step 1: Connecting the Antenna Cable

Select one of the following antenna hookups.

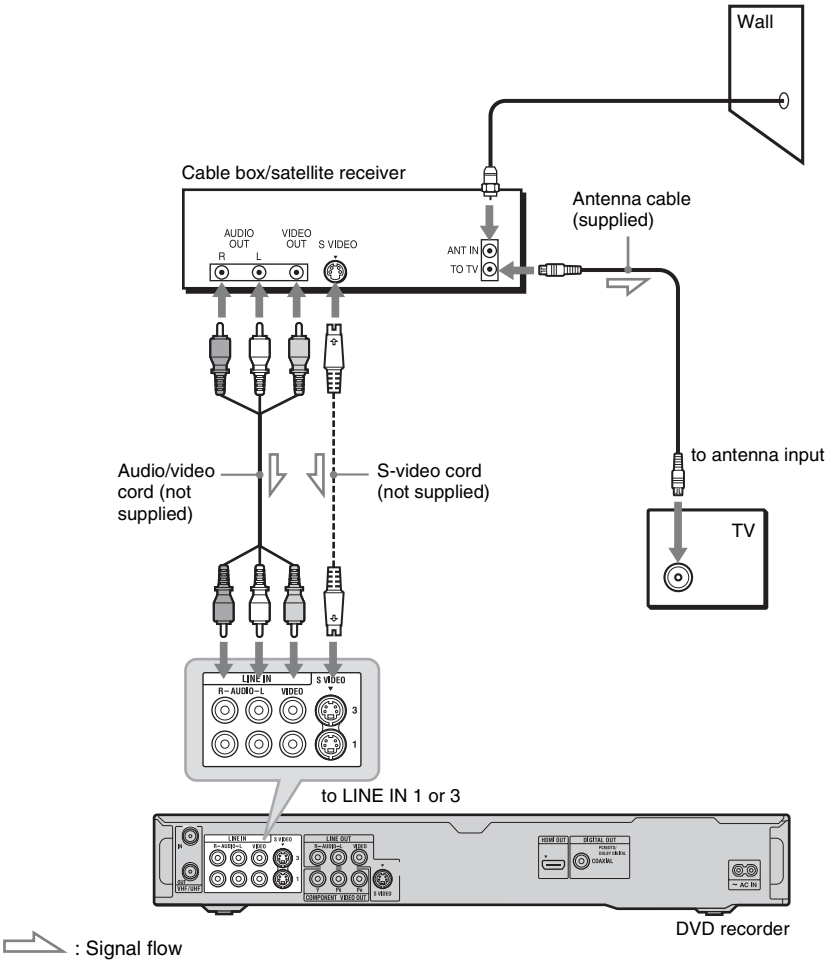
If you have	Hookup
A: Cable box or satellite receiver with a video/audio output	A (page 14)
B: Cable box with an antenna output only	B (page 15)
C: Cable without cable box, or antenna only (no cable TV)	C (page 16)

Notes

- If your antenna is a flat cable (300-ohm twin lead cable), use an external antenna connector (not supplied) to connect the antenna to the recorder.
- If you have separate cables for VHF and UHF antennas, use a UHF/VHF band mixer (not supplied) to connect the antenna to the recorder.

A: Cable box or satellite receiver with a video/audio output

With this hookup, you can record any channel on the cable box or satellite receiver. Be sure that the satellite receiver or cable box is turned on.
To watch cable or satellite channel, you need to match the channel on the recorder (L1 or L3) to the input jack connected to the cable box or satellite receiver (LINE IN 1 or 3).

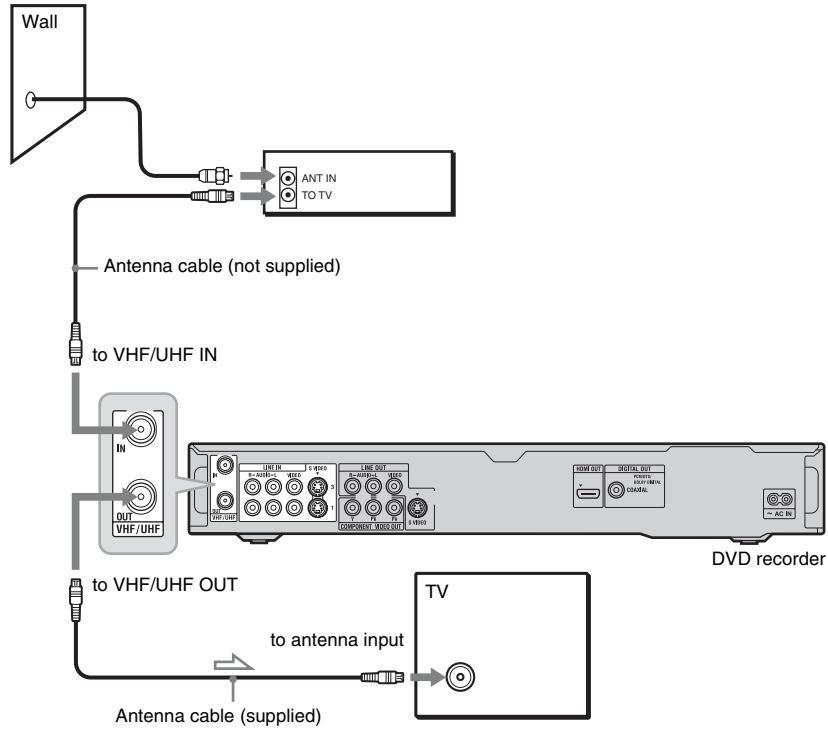


Hint

If your cable box or satellite receiver has an S-video jack, you can use an S-video cord (not supplied) instead of the audio/video cord.

B: Cable box with an antenna output only

With this hookup, you can record any channel on the satellite receiver or cable box. Be sure that the satellite receiver or cable box is turned on.
To watch cable programs, you need to match the channel on the recorder (2ch, 3ch, or 4ch) to the antenna output channel on the cable box (2ch, 3ch, or 4ch).



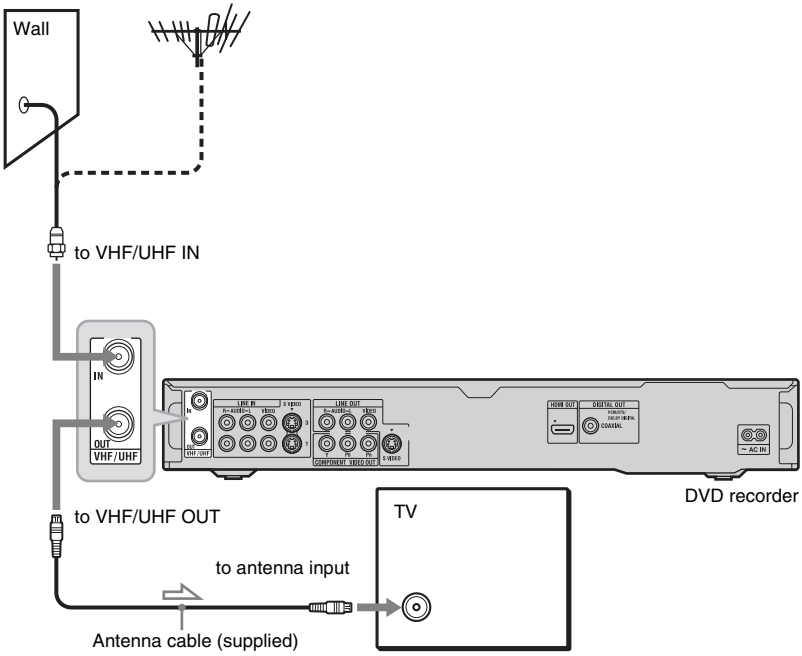
: Signal flow

Note

When using this connection, set “Auto Channel Setting” to “Antenna” in the “Tuner” setup (page 101).

C: Cable without cable box, or antenna only (no cable TV)

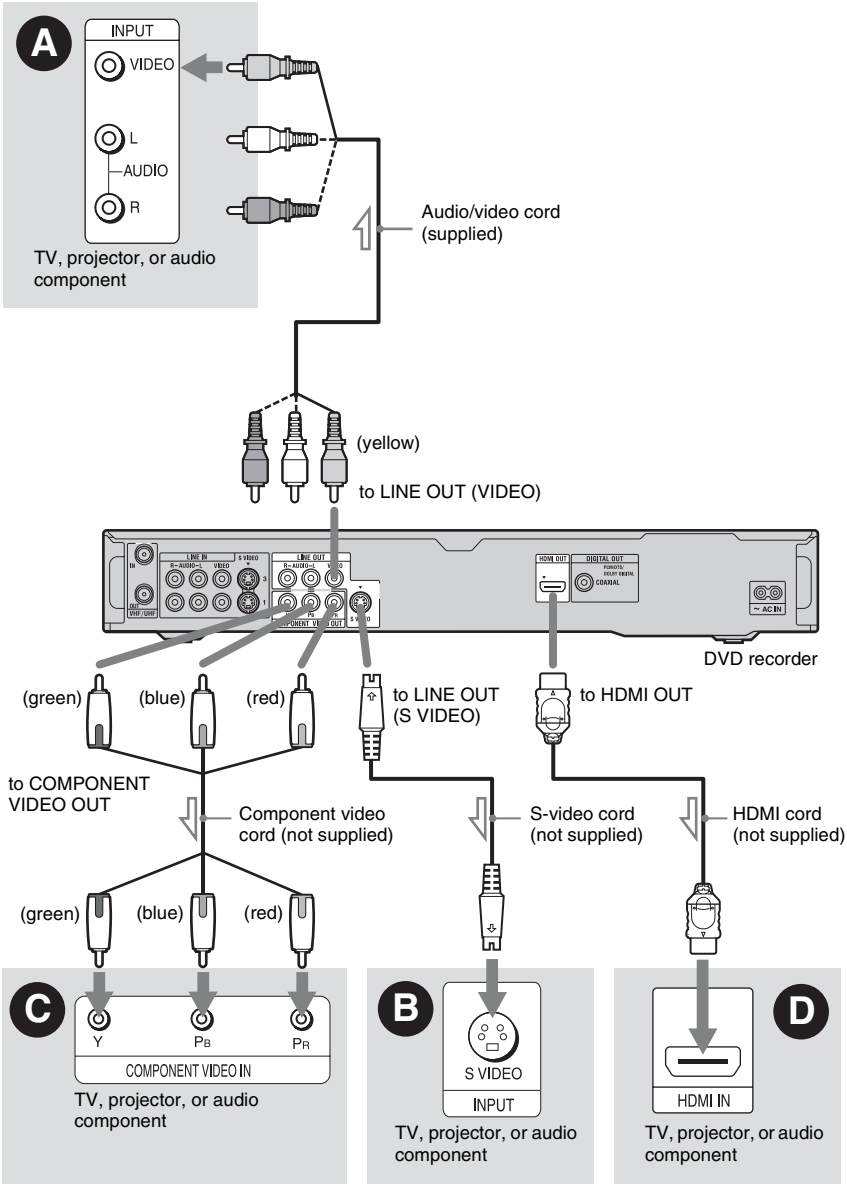
Use this hookup if you watch cable channels without a cable box. Also use this hookup if you are using a VHF/UHF antenna or separate VHF and UHF antennas.
With this hookup, you can record any channel by selecting the channel on the recorder.



: Signal flow

Step 2: Connecting the Video Cords/HDMI Cord

Select one of the following patterns, A through D, according to the input jack on your TV monitor, projector, or audio component such as an AV amplifier (receiver). This will enable you to view pictures.



➡continued

Ⓐ Video input jack
You will enjoy standard quality images.

Ⓑ S VIDEO input jack
You will enjoy high quality images.

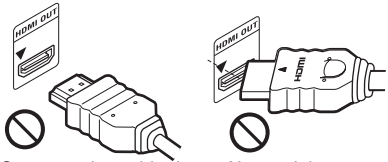
Ⓒ Component video input jacks (Y, P_B, P_R)
You will enjoy accurate color reproduction and high quality images.
If your TV accepts progressive format (480p) signals, use this connection and set "Progressive" to "Compatible" in the "Easy Setup" setup (page 24). Then set "Component Video Out" to "Progressive" in the "Video Out" setup to send progressive video signals. For details, see "Component Video Out" on page 103.

Ⓓ HDMI input jack
Use a certified HDMI cord (not supplied) to enjoy high quality digital picture and sound through the HDMI OUT jack.

When connecting a Sony TV that is compatible with the HDMI control function, see page 19.

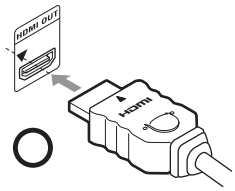
When connecting to the HDMI jack
Follow the steps below. Improper handling may damage the HDMI jack and the connector.

1 Carefully align the HDMI jack on the rear of the recorder and the HDMI connector by checking their shapes. Make sure the connector is not upside down or tilted.



Connector is upside down Not straight

2 Insert the HDMI connector straight into the HDMI jack.
Do not bend or apply pressure to the HDMI connector.



Notes
- Be sure to disconnect the HDMI cord when moving the recorder.
- Do not apply too much pressure to the cabinet wall, if you place the recorder on the cabinet with the HDMI cord connected. It may damage the HDMI jack or the HDMI cord.
- Do not twist the HDMI connector while connecting to or disconnecting from the HDMI jack to avoid damaging the HDMI jack and connector.

When playing "wide screen" images
Some recorded images may not fit your TV screen. To change the picture size, see page 109.

If you are connecting to a VCR
Connect your VCR to the LINE IN jacks on the recorder (page 26).

Notes
- Do not connect more than one type of video cord between the recorder and your TV at the same time.
- You cannot connect the HDMI OUT jack (connection Ⓓ) to DVI jacks that are not HDCP compliant (e.g., DVI jacks on PC displays).
- Component video signal is not output when using the HDMI connection.

* This DVD recorder incorporates High-Definition Multimedia Interface (HDMI™) technology.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

About the HDMI Control functions for 'BRAVIA' Theatre Sync (for HDMI connections only)

By connecting Sony components that are compatible with the HDMI Control function with an HDMI cord (not supplied), operation is simplified as below:

- One-Touch Play (page 53)
- System Power-Off
  When you turn the TV off by using the power button on the TV's remote, the components compatible with the HDMI Control function turn off automatically.

To prepare for the 'BRAVIA' Theatre Sync features

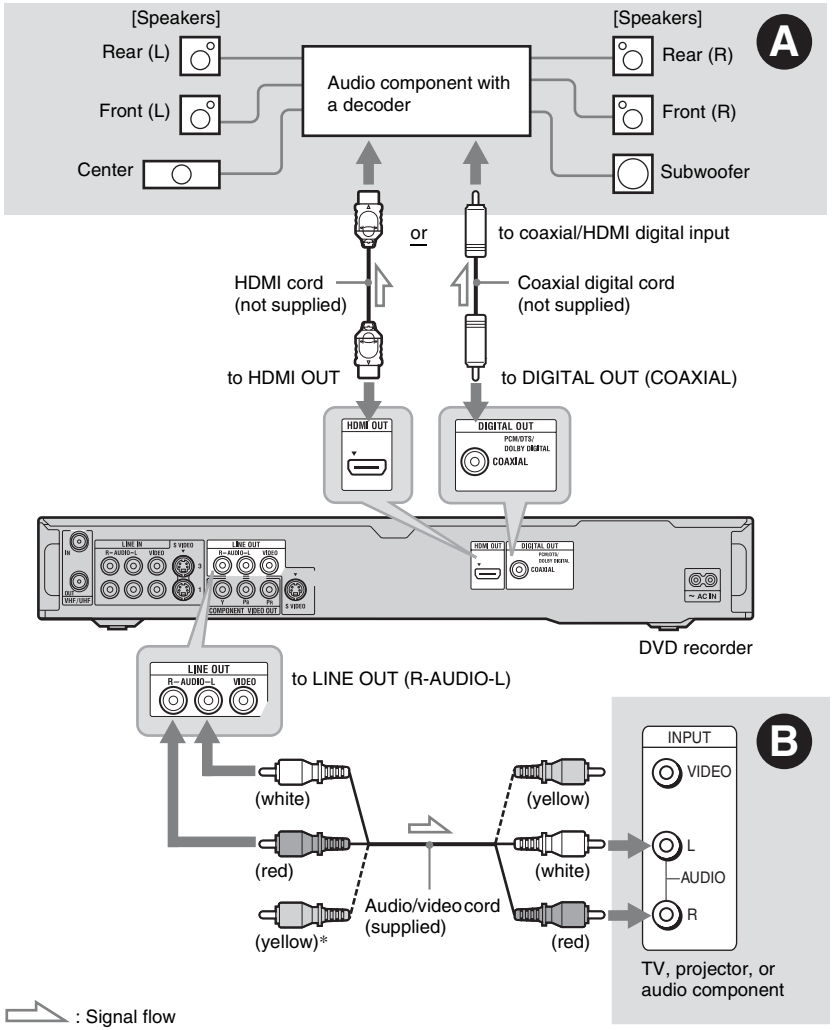
Set "HDMI Control" to "On" in the "HDMI Output" setup (page 113). For details on TV settings, refer to the operating instructions supplied with the TV.

Notes

- Depending on the connected component, the HDMI Control function may not work. Refer to the operating instructions supplied with the component.
- The recorder supports only the playback option of HDMI Control. "Player" appears on the TV screen when using the HDMI Control functions.

Step 3: Connecting the Audio Cords/HDMI Cord

Select one of the following patterns, Ⓐ or Ⓑ, according to the input jack on your TV monitor, projector, or audio component such as an AV amplifier (receiver). This will enable you to listen to sound.



* The yellow plug is used for video signals (page 17).

Ⓐ Digital audio input jack

If your audio component has a Dolby*1 Digital, DTS*2, or MPEG audio decoder and a digital input jack, use this connection. You can enjoy Dolby Digital (5.1ch), DTS (5.1ch), and MPEG audio (5.1ch) surround effects.

If you connect a Sony audio component that is compatible with the HDMI control function, refer to the operating instructions supplied with the audio component.

Ⓑ Audio L/R (left/right) input jacks

This connection will use your TV's or audio components two speakers for sound.

Hint

For correct speaker location, see the operating instructions supplied with the connected components.

Notes

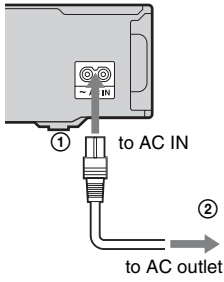
- Do not connect your TV's audio output jacks to the LINE IN (R-AUDIO-L) jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- With connection Ⓑ, do not connect the LINE IN (R-AUDIO-L) and LINE OUT (R-AUDIO-L) jacks to your TV's audio output jacks at the same time. This will cause unwanted noise to come from your TV's speakers.
- With connection Ⓐ, after you have completed the connection, make the appropriate settings in the "Audio Out" setup (page 104). Otherwise, no sound or a loud noise will come from your speakers.
- When you connect the recorder to an audio component using an HDMI cord, you will need to do one of the following:
  – Connect the audio component to the TV with the HDMI cord, or
  – Connect the recorder to the TV with a video cord other than HDMI cord (component video cord, S-video cord, or audio/video cord).

*1 Manufactured under license from Dolby Laboratories.
"Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

*2 "DTS" and "DTS Digital Out" are registered trademarks of DTS, Inc.

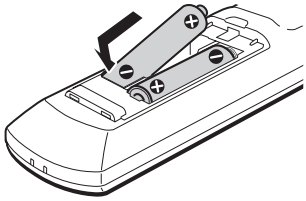
Step 4: Connecting the AC Power Cord

Connect the supplied AC power cord to the AC IN terminal of the recorder. Then plug the recorder and TV power cords into the AC outlet. After you connect the AC power cord, **you must wait for a short while before operating the recorder.** You can operate the recorder once the front panel display lights up and the recorder enters standby mode.
If you connect additional equipment to this recorder (page 26), be sure to connect the AC power cord after all connections are complete.



Step 5: Preparing the Remote

You can control the recorder using the supplied remote. Insert two Size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the battery compartment. When using the remote, point it at the remote sensor R on the recorder.



Notes

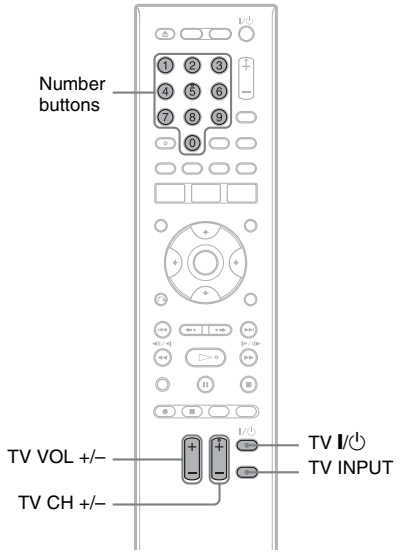
- If the supplied remote interferes with your other Sony DVD recorder or player, change the command mode number for this recorder (page 23).
- Use the batteries correctly to avoid possible leakage and corrosion. Should leakage occur, do not touch the liquid with bare hands. Observe the following:
  – Do not use a new battery with an old battery, or batteries of different manufacturers.
  – Do not attempt to recharge the batteries.
  – If you do not intend to use the remote for an extended period of time, remove the batteries.
  – If battery leakage occurs, wipe out any liquid inside the battery compartment, and insert new batteries.
- Do not expose the remote sensor (marked R on the front panel) to strong light, such as direct sunlight or a lighting apparatus. The recorder may not respond to the remote.
- When you replace the batteries of the remote, the code number and Command Mode may be reset to the default setting. Set the appropriate code number and Command Mode again.

Controlling TVs with the remote

You can adjust the remote's signal to control your TV.

Notes

- Depending on the connected unit, you may not be able to control your TV with some or all of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.



1 Hold down TV I/⏻ located at the bottom of the remote.

Do not press the I/⏻ button at the top of the remote.

2 With TV I/⏻ pressed down, enter the TV's manufacturer code using the number buttons.

For instance, to enter "09," press "0" then "9." After you enter the last number, release the TV I/⏻ button.

Code numbers of controllable TVs

Manufacturer	Code number
Sony	01 (default)
Hitachi	02
MGA/Mitsubishi	13
NEC	04
Panasonic	19
Philips	21
Pioneer	16
RCA	10
Samsung	20
Sharp	18
Toshiba	07

The remote performs the following:

Buttons	Operations
TV I/⏻	Turns your TV on or off.
TV VOL (volume) +/–	Adjusts the volume of your TV.
TV CH +/–	Selects the channel on your TV.
TV INPUT (input select)	Switches your TV's input source.

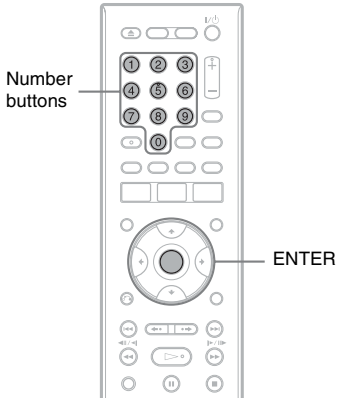
If you have a Sony DVD player or more than one Sony DVD recorder

If the supplied remote interferes with your other Sony DVD recorder or player, set the command mode number for this recorder and the supplied remote to one that differs from the other Sony DVD recorder or player after you have completed "Step 6: Easy Setup." The default command mode setting for this recorder and the supplied remote is DVD3. You can check the current Command Mode in the front panel display. For details, see page 114.

The default command mode setting for this recorder and the supplied remote is DVD3. The remote does not function if different command modes are set for the recorder and remote. Set the same command mode.

Changing channels of the recorder using the remote

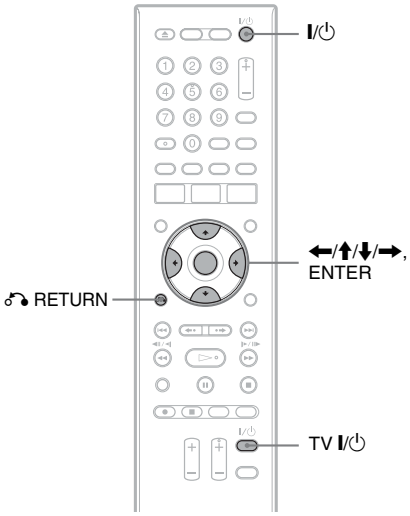
You can change channels of the recorder using the number buttons.



Example: for channel 50
Press "5," "0," then press ENTER.

Step 6: Easy Setup

Make the basic adjustments by following the on-screen instructions in “Easy Setup.”
Be careful not to disconnect the cables or exit the “Easy Setup” function during this procedure.



1 Turn on the recorder and your TV. Then switch the input selector on your TV so that the signal from the recorder appears on your TV screen.

The “Language” display appears.

- If the “Language” display does not appear, select “Easy Setup” in the “Basic” setup from “Initial Setup” in the System Menu (page 101).

2 Select a language for the on-screen displays using ←/↑/↓/→, and press ENTER.

The initial settings message appears.

3 Select “Start” using ↑/↓, and press ENTER.

Follow the on-screen instructions to make the following settings.

◆ Auto Channel Setting

Select whether or not you have a cable connection (“Cable” or “Antenna”). Auto channel setting automatically searches for all of the receivable channels and presets them.

To skip this setting, select “Do not set.” To set the channels manually, see page 102.

◆ Clock Setting

Select “Auto” when you use antenna hookup C (page 16). The “Auto Clock Setting” display appears.

1 Select the channel of the station that carries a time signal using ←/→.

2 Select “Start” using ↓, and press ENTER.
If a clock signal cannot be found, press RETURN, and set the clock manually.

Select “Manual” to set the clock manually. The “Manual Clock Setting” display appears.

1 Select the time zone for your area using ←/→, and press ↓.

2 Select “On” using ←/→ if you are now on D.S.T (Daylight Saving Time), and press ENTER.

3 Set the month, day, year, hour, and minutes using ←/↑/↓/→, and press ENTER to start the clock.

◆ TV Screen Size (page 109)

If you have a wide-screen TV, select “Wide (16:9).” If you have a standard TV, select “Standard (4:3).” This will determine how “wide-screen” images are displayed on your TV.

◆ Progressive

When you connect a progressive format TV to this recorder using the COMPONENT VIDEO OUT jacks, select “Compatible.”

◆ HDD caution messages

Read the HDD caution messages, and press ENTER.

4 Select “Finish Setup” using ↑/↓, and press ENTER.

“Easy Setup” is completed.

To return to the previous step

Press ↶ RETURN.

Hint

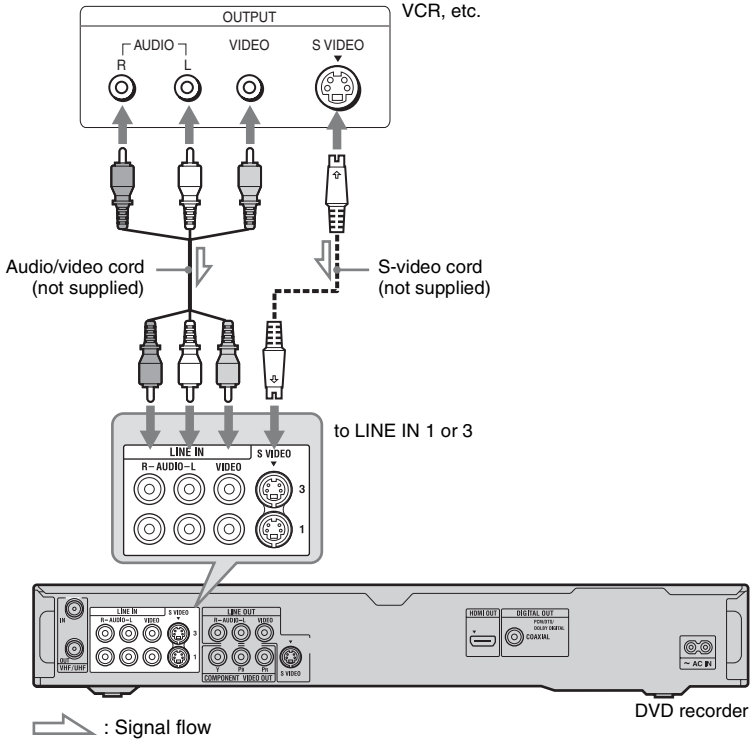
If you want to run “Easy Setup” again, select “Easy Setup” in the “Basic” setup from “Initial Setup” in the System Menu (page 101).

Connecting a VCR or Similar Device

After disconnecting the recorder's AC power cord from the AC outlet, connect a VCR or similar recording device to the LINE IN jacks of this recorder.
Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack) (page 75).
For details, refer to the instruction manual supplied with the connected equipment.
To record on this recorder, see "Recording from Connected Equipment" on page 50.

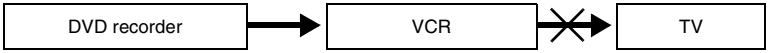
Connecting to the LINE IN 1 or 3 jacks

Connect a VCR or similar recording device to the LINE IN 1 or 3 of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.

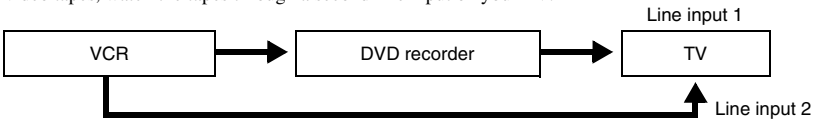


Notes

- Pictures containing copy protection signals that prohibit any copying cannot be recorded.
- If you pass the recorder signals through a VCR, you may not receive a clear image on your TV screen.



Be sure to connect your VCR to the DVD recorder and to your TV in the order shown below. To watch video tapes, watch the tapes through a second line input on your TV.

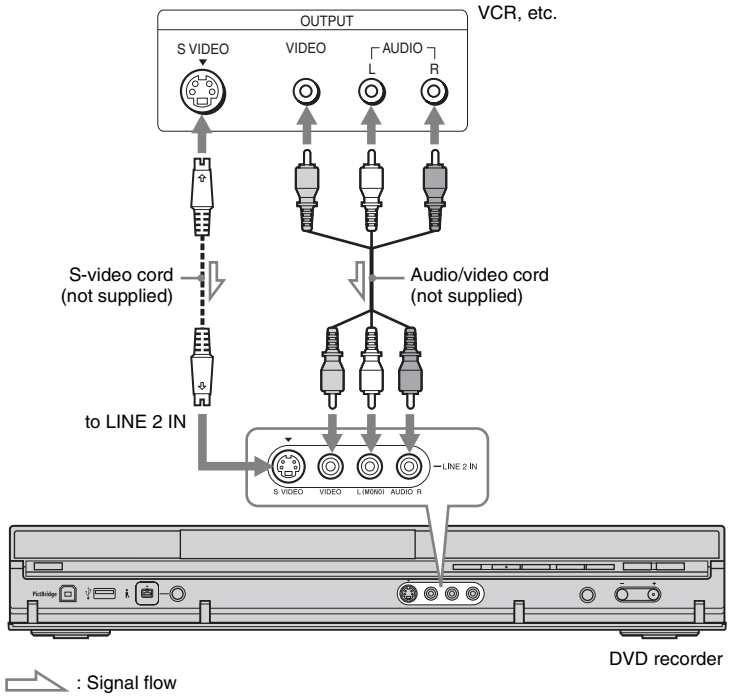


- If you disconnect the recorder's AC power cord, you will not be able to view the signals from the connected VCR.

➡*continued*

Connecting to the LINE 2 IN jacks on the front panel

Connect a VCR or similar recording device to the LINE 2 IN jacks of this recorder. If the equipment has an S-video jack, you can use an S-video cord instead of an audio/video cord.



Hint

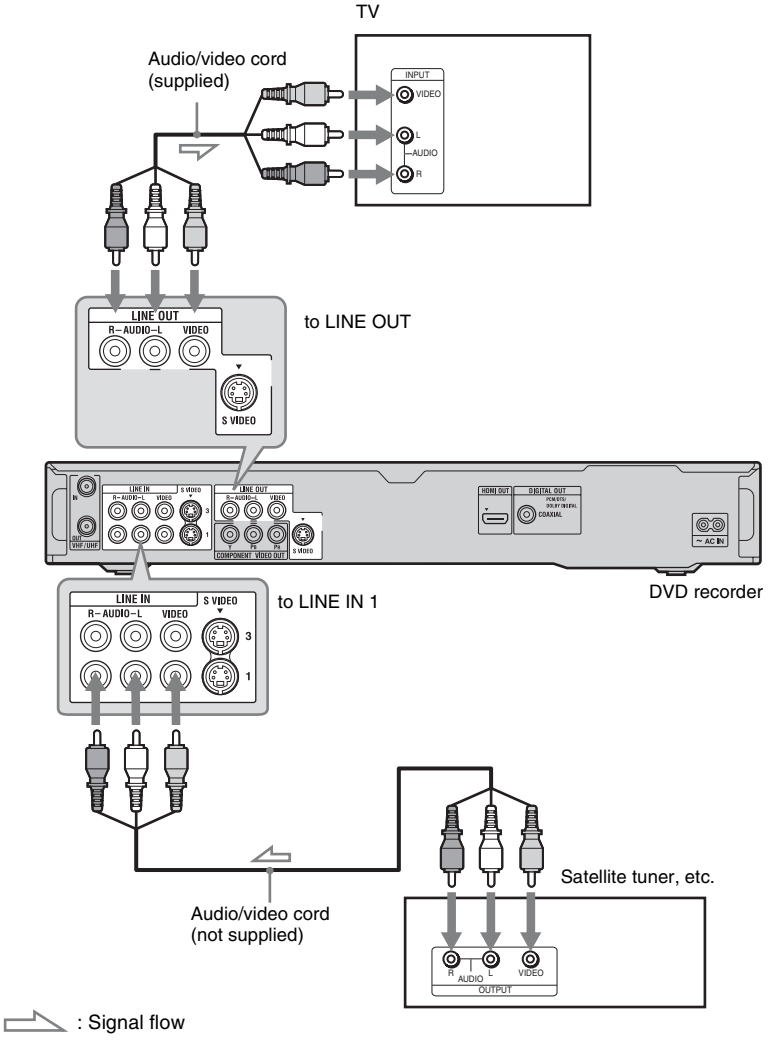
When the connected equipment outputs only monaural sound, connect to only the L(MONO) and VIDEO input jacks on the front of the recorder. Do not connect the R input jack.

Notes

- Do not connect the yellow LINE IN (VIDEO) jack when using an S-video cord.
- Do not connect the output jack of this recorder to another equipment's input jack with the other equipment's output jack connected to the input jack of this recorder. This may cause noise (feedback).
- Do not connect more than one type of video cord between the recorder and your TV at the same time.

Connecting to a Satellite or Digital Tuner

Connect a satellite or digital tuner to this recorder using the LINE IN 1 jacks. Disconnect the recorder's AC power cord from the AC outlet when connecting the tuner.
To use the Synchro-Rec function, see below.



If you want to use the Synchro Rec function

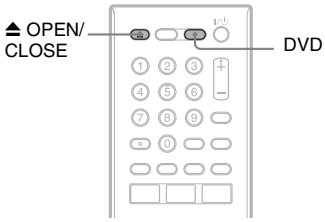
This connection is necessary to use the Synchro-Recording function. See "Recording from connected equipment with a timer (Synchro Rec.)" on page 50.

Notes

- Synchro-Recording does not work with some tuners. For details, see the tuner's operating instructions.
- If you disconnect the recorder's AC power cord, you will not be able to view the signals from the connected tuner.

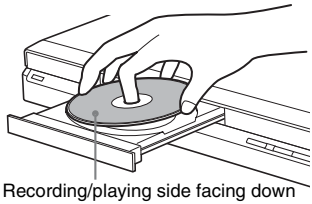
1. Inserting a Disc

+RW -RWVR -RWVideo +R -RVR -RVideo DVD VCD CD DATA DVD DATA CD



1 Press DVD.

2 Press ≜ OPEN/CLOSE, and place a disc on the disc tray.



3 Press ≜ OPEN/CLOSE to close the disc tray.

Wait until "LOAD" disappears from the front panel display.
Unused DVDs are formatted automatically.

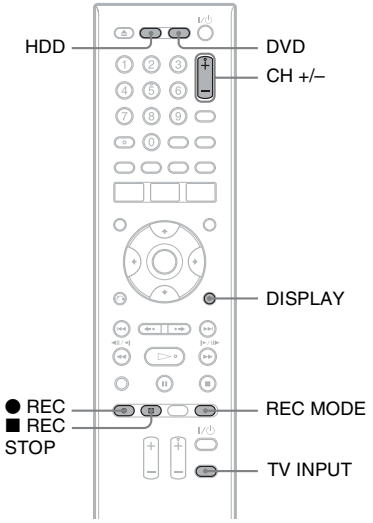
- For DVD-RW discs
  DVD-RWs are formatted in the recording format (VR mode or Video mode) set by "Format DVD-RW" of "Basic" in the "Disc Setup" setup (page 99).
- For DVD-R discs
  DVD-Rs are automatically formatted in Video mode. To format an unused DVD-R in VR mode, format the disc in the "Format" setup (page 42) **before** you make a recording.

If the disc is recordable on this recorder, you can manually re-format the disc to make a blank disc (page 42).

2. Recording a Program

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

This section introduces the basic operation to record a current TV program to the hard disk (HDD) or to a disc (DVD). For an explanation of how to make timer recordings, see page 43.



1 Press HDD or DVD.

If you want to record to a DVD, insert a recordable DVD.

2 Press CH +/– to select the channel or input source you want to record.

3 Press REC MODE repeatedly to select the recording mode.

Each time you press the button, the display on the TV screen changes as follows:

HQ → HSP → SP → LSP → ESP → MN* → SEP → SLP → EP → LP →

* Available when "Manual Rec. Mode" is set to "On (go to setup)" in the "Recording" setup (page 107).

For more details about the recording mode, see page 43.

4 Press ● REC.

Recording starts.
When recording to the HDD, recording stops after 12 hours of continuous recording or when the HDD is full.
When recording to a DVD, recording stops when the DVD is full.

To stop recording

Press ■ REC STOP.
Note that it may take a few seconds for recorder to stop recording.

To watch another TV program while recording

Set your TV to the TV input using the TV INPUT button (page 22).

Hint

If you do not want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.

Notes

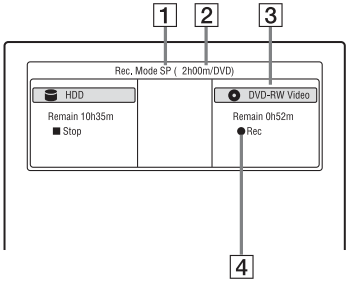
- If you press the I/⏻ button while recording, the recorder stops recording and turns off.
- After pressing the ● REC button, it may take a short while to start recording.
- You cannot change the recording mode while recording.
- If there is a power failure, the program you are recording may be erased.

Checking the disc status while recording

You can check the recording information such as recording time or disc type.

Press DISPLAY during recording.

The recording information appears.



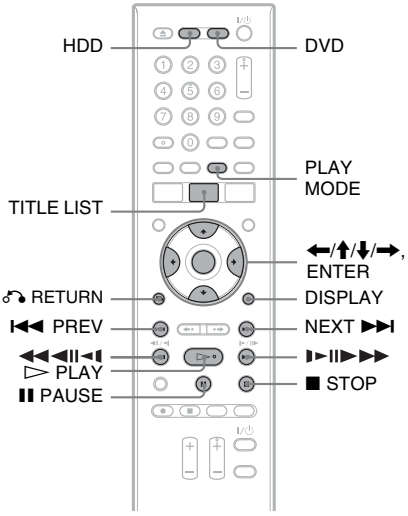
1 Recording mode
2 Recording time
3 Disc type/format
4 Recording status

Press DISPLAY to turn off the display.

3. Playing the Recorded Program (Title List)

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

To play a recorded title, select the title from the Title List.



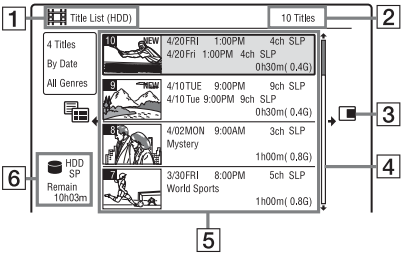
1 Press HDD or DVD.

If you select DVD, insert a DVD (see "1. Inserting a Disc" on page 30).
Playback starts automatically depending on the disc.

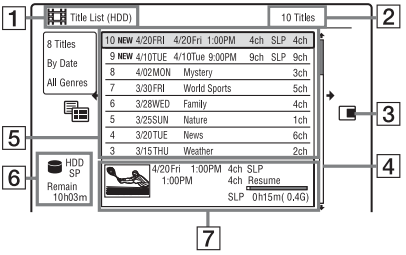
2 Press TITLE LIST.

To show the 8-Title List, press ← to select "Title View," and press ENTER, then select "8 Titles" using ↑/↓, and press ENTER.

4-Title List (Example: HDD)



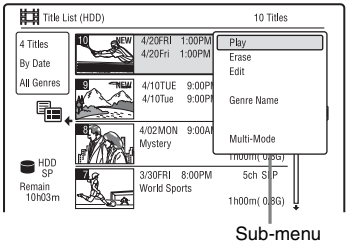
8-Title List



1 Disc type:
Displays the media type, HDD or DVD.

2 Total number of titles

3 Sub-menu:
Press → to display the sub-menu. The sub-menu displays options applicable only to the selected item. The displayed options differ depending upon the model, situation, and disc type.



4 Scroll bar:
Appears when all of the titles do not fit on the list. To view the hidden titles, press ↑/↓.

5 Title information:
Displays the title number, title thumbnail picture (playback picture for the selected title, still images for the other titles), recording date, recorded station name (or channel number), recording mode, title name, and title size.

"Recording": Indicates that the title is currently being recorded.
: Indicates protected title.
"NEW": Indicates that the title is newly recorded (not played back) (HDD only).
COPY: Press DISPLAY to display "COPY." "COPY" indicates titles containing "Copy-Once" copy protection signals (HDD only) (page 70).
: Indicates that the title is recorded using the Update function.
Genre icons: Indicates the title's genre (HDD only).

6 Remaining time of current disc in the current recording mode (example: SP mode).

7 Detailed information for the selected title
The resume point time is shown in the 8-Title List.

3 Select a title using ↑/↓, and press ENTER.
Playback starts from the selected title.

To stop playback
Press ■ STOP.

To scroll the list display by page (Page mode)
Press ⏮ PREV/NEXT ⏭ while the Title List is displayed. Each time you press ⏮ PREV/NEXT ⏭, the entire Title List changes to the next/previous page of titles.

About the Title List for DVD-RWs/DVD-Rs (VR mode)
You can switch the Title List to show Original or Playlist titles.

1 Press ← while the Title List is displayed.
2 Select "Play List" using ↑/↓, and press ENTER.
3 Select "Original" or "Play List" using ↑/↓, and press ENTER.

To change the title order for HDD (Sort Titles)

1 Press ← while the Title List is displayed.
2 Select "Sort Titles" using ↑/↓, and press ENTER.
3 Select the item using ↑/↓, and press ENTER.

Order	Sorted
By Date	In order of when the titles were recorded. The title that is recorded most recently is listed at the top.
Unseen Title	In order of when the titles were recorded. The title that is recorded most recently and has not been played is listed at the top. Playlist titles are not displayed.
By Title	In alphabetical order.
By Number	In order of recorded title number.

To search for a title by genre (HDD only)

1 Press ← while the Title List is displayed.
2 Select "Genre" using ↑/↓, and press ENTER.
3 Select a genre using ↑/↓, and press ENTER.

To change a title thumbnail picture (Thumbnail)

After recording, the first scene of the recording (the title) is automatically set as the thumbnail picture. You can select a favorite scene for the thumbnail picture shown in the Title List.

1. Press TITLE LIST.
   For DVD-RWs/DVD-Rs (VR mode), switch the Title Lists, if necessary.
2. Select a title, and press ➡.
   The sub-menu appears.
3. Select "Edit" using ↑/↓, and press ENTER.
4. Select "Set Thumbnail" using ↑/↓, and press ENTER.
   The display for setting the thumbnail point appears and the title starts to play.
5. While watching the playback picture, press ▷ PLAY, ❚❚ PAUSE or ◄II ◄❚ ◄◄/►► ❚► II► to select the scene you want to set for a thumbnail picture, and press ❚❚ PAUSE.
   Playback pauses.
   You can also select a scene using the PLAY MODE button (page 60).
6. Select "OK" using ↑/↓, and press ENTER.
   The scene is set for the title's thumbnail picture.
   To return to the Title List, press ↩ RETURN.

To change the thumbnail preview mode (Set Preview) (HDD only)

You can select "Quick Preview" or "Normal" for the thumbnail preview mode in the Title List. Set "Set Preview" in the "Options" setup (page 115).

To turn off the Title List

Press TITLE LIST.

Hint

You can select "Title List" from the System Menu.

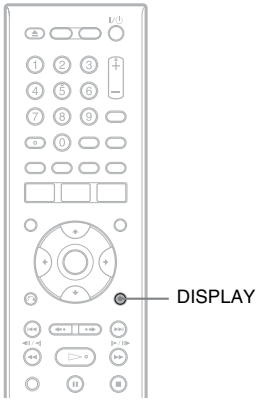
Notes

- The title names may not appear for DVDs created on other DVD recorders.
- It may take a few seconds for the thumbnail pictures to be displayed.
- After editing, the title thumbnail picture may change to the first scene of the recording (title).
- After dubbing, the title thumbnail picture set on the source recording is canceled.
- When the Title List does not appear by pressing the TITLE LIST button, the DVD has no Title List. In this case, try pressing the TOP MENU button to display the DVD's menu.

4. Displaying the Playing Time and Play Information

HDD +RW -RWVR -RWVideo +R
-RVR -RVideo DVD VCD CD
DATA DVD DATA CD

You can check the playing time of the current title, chapter, track, or disc. Also, you can check the disc name recorded on the DVD/CD.

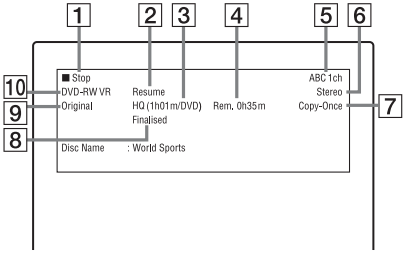


Press DISPLAY repeatedly.

The displays differ depending on the disc type or playing status.

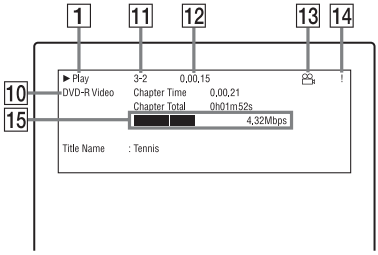
In stop mode

Example: DVD-RW in VR mode



During playback

Example: DVD-R in Video mode



1 Playing status

2 Shows that the Resume Play is available (page 53).

3 Current selected recording mode (remaining DVD recording time/disc type) (page 43)

4 Remaining time

5 Station name and channel number

6 Audio setting for the current program

7 Recording restrictions for the current program

8 Disc information

9 Title type (Original or Playlist) for DVD-RW/DVD-R in VR mode

10 Disc type/format (page 9)
Displays the finalized disc in video mode as "DVD-VIDEO."

11 Title number-Chapter number (page 60)

12 Playing time

13 Multi-angles indicator (page 52)

14 Copy-protected indicator (page 44)

15 Data transfer bar and rate

➡continued

Hints

- When “On Screen Display” is set to “On” (default) in the “Options” setup (page 114), information automatically appears on the screen when the recorder is operated.
- To increase disc space, see “To open up disc space” (page 63).

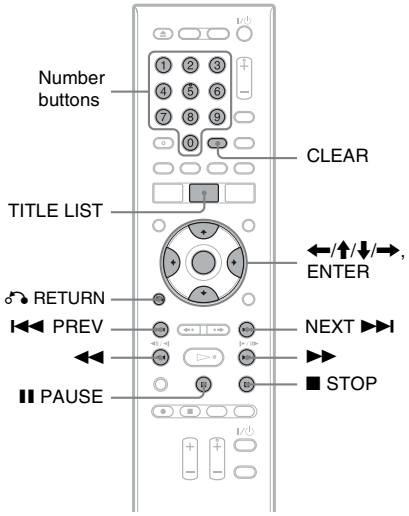
Note

Playing time of MP3 audio tracks may not be displayed correctly.

5. Changing the Name of a Recorded Program

HDD +RW -RW VR -RW Video +R -R VR -R Video

You can label a DVD, title, or program by entering characters. You can enter up to 64 characters for a title recorded in the HDD/DVD-RW/DVD-R (VR mode), 40 characters for a title recorded in the DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode), but the actual number of characters displayed in the menus such as the Title List will vary. The steps below explain how to change the name of the recorded program.



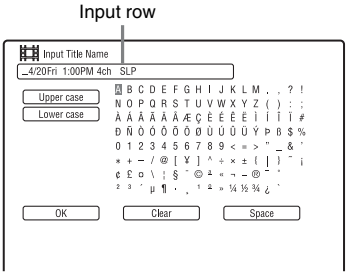
1 Press TITLE LIST.

2 Select a title, and press →.
The sub-menu appears.

3 Select “Edit,” and press ENTER.

4 Select “Title Name,” and press ENTER.

The display for entering characters appears.
The current name is displayed at the input row.



5 Move the cursor to the point where you want to insert the character using ◀◀/▶▶.

To erase all of the characters, press and hold CLEAR for 2 seconds or more.

6 Select “Upper case” or “Lower case” using I◀◀ PREV/NEXT ▶▶I.

The characters for the selected type are displayed.
The type of characters will change according to the language you select in “Easy Setup.”

7 Press ←/↑/↓/→ to select the character you want to enter, and press ENTER.

The selected character appears at the input row.
To insert a space, press ❚❚ PAUSE (or select “Space,” and press ENTER).

8 Repeat steps 6 and 7 to enter the remaining characters.

To erase a character, move the cursor to the character at the input row, and press CLEAR (or select “Clear,” and press ENTER).
To insert a character, move the cursor to the right of the point where you want to insert the character. Then select the character, and press ENTER.
To erase all of the characters, press and hold CLEAR for 2 seconds or more.

9 Press ■ STOP (or select “OK,” and press ENTER).

To cancel the setting, press ↶ RETURN.

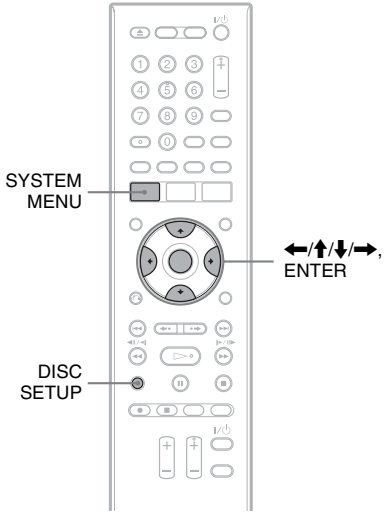
To use the number buttons

You can also use the number buttons to enter characters. Refer to the number next to each row of letters on your TV screen.

1. In step 7 above, press a number button repeatedly to select a character.
   Example:
   Press the number 3 button once to enter “D.”
   Press the number 3 button three times to enter “F.”
2. Press ENTER and select the next character.
3. Press ■ STOP (or select “OK,” and press ENTER).

6. Labeling and Protecting a Disc

You can execute options effective for the entire disc in the “Disc Setup” setup.



Labeling a disc

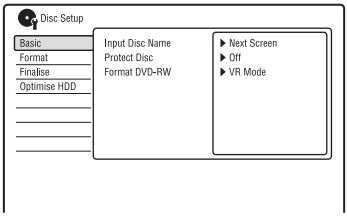
+RW -RWVR -RWVideo +R -RVR -RVideo

1 Insert a disc.

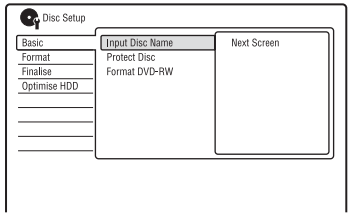
See “1. Inserting a Disc” on page 30.

2 Press DISC SETUP.

The “Disc Setup” menu appears.



3 Select “Basic,” and press ENTER.



4 Select “Input Disc Name,” and press ENTER.

5 Select “Next Screen,” and press ENTER.

Enter the disc name (page 36).

Hint

You can also select the “Disc Setup” menu in the System Menu.

Note

You can enter up to 64 characters for a DVD-RW/DVD-R (VR mode) disc name, and 40 characters for a DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode) disc name. The disc name may not appear when the disc is played on other DVD equipment.

Protecting a disc

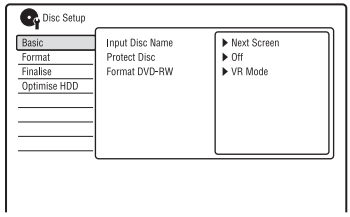
-RWVR -RVR

1 Insert a disc.

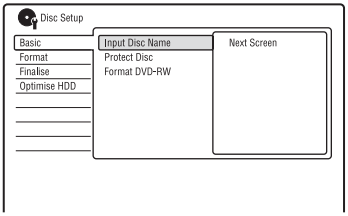
See “1. Inserting a Disc” on page 30.

2 Press DISC SETUP.

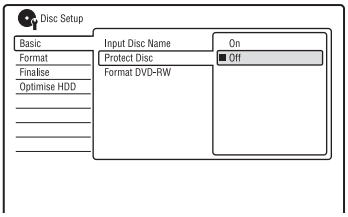
The “Disc Setup” menu appears.



3 **Select “Basic,” and press ENTER.**



4 **Select “Protect Disc,” and press ENTER.**



5 **Select “On,” and press ENTER.**

6 **Press DISC SETUP to exit.**

To cancel the protection

Select “Off” in step 5.

Hint

You can set protection for individual titles (page 63).

7. Playing the Disc on Other DVD Equipment (Finalise)

+RW -RWVR -RWVideo +R -RVR -RVideo

Finalizing is necessary when you play discs recorded with this recorder on other DVD equipment.
When you finalize a DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R (Video mode), a DVD menu will be automatically created, which can be displayed on other DVD equipment.
Before finalizing, check the differences between the disc types in the table below.

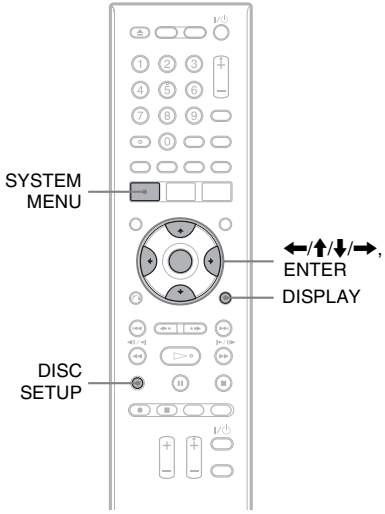
Differences between disc types

+RW	Discs are automatically finalized when removed from the recorder. However, you may need to finalize the disc for certain DVD equipment, or if the recording time is short. You can edit or record on the disc even after finalizing.
-RWVR	Finalizing is unnecessary when playing a disc on VR format compatible equipment. Even if your other DVD equipment is VR format compatible, you may need to finalize the disc, especially if the recording time is short. You can edit or record on the disc even after finalizing.
-RWVideo	Finalizing is necessary when playing on any equipment other than this recorder. After finalizing, you cannot edit or record on the disc. If you want to record on it again, unfinalize (page 41) or reformat the disc (page 42). However, if you reformat the disc, all recorded contents will be erased.
-RVR	Finalizing is necessary. The disc can be played only on equipment that supports DVD-R in VR mode. After finalizing you cannot edit or record on the disc using this recorder.

➡continued

+R
-RVideo

Finalizing is necessary when playing on any equipment other than this recorder.
After finalizing, you cannot edit or record on the disc.

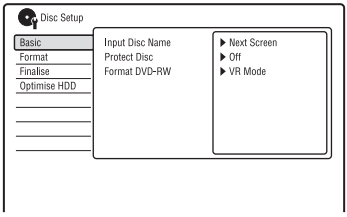


1 Insert a disc.

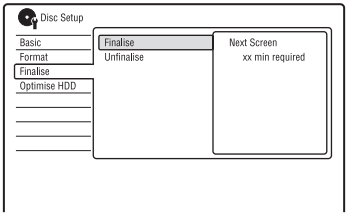
See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

The "Disc Setup" menu appears.



3 Select "Finalise," and press ENTER.



4 Select "Finalise," and press ENTER.

5 Select "Next Screen," and press ENTER.

For DVD-RW/DVD-R (VR mode), the recorder starts finalizing the disc. Go to step 8.

6 (DVD+RW/DVD-RW (Video mode)/ DVD+R/DVD-R (Video mode) only) Select a title menu style, and press ENTER.

The menu appears in the selected title menu style when the "top menu" (or "menu" for a DVD+RW/DVD+R) is selected on the DVD equipment.

7 (DVD+RW/DVD-RW (Video mode)/ DVD+R/DVD-R (Video mode) only) Select "Yes," and press ENTER.

The recorder starts finalizing the disc.

8 Press DISC SETUP to exit.

Hints

- You can check whether the disc has been finalized or not. Press DISPLAY after step 1 (page 35).
- You can also select the "Disc Setup" menu in the System Menu.

Notes

- Depending on the condition of the disc, recording, or the DVD equipment, discs may not play even if the discs are finalized.
- The recorder may not be able to finalize the disc if it was recorded on another recorder.
- Inserting an unfinalized disc into other DVD equipment may damage the recorded contents.
- When using a DVD+RW, you can edit or record on the disc even after finalizing. However, the title menu will not be displayed. Finalize the disc again to display the title menu.

Unfinalizing a disc

-RW VR -RW Video

For DVD-RWs (Video mode)

DVD-RWs (Video mode) that have been finalized to prohibit additional recording or editing can be unfinalized to allow further recording or editing.

For DVD-RWs (VR mode)

If you cannot record or edit on a DVD-RW (VR mode) that has been finalized with other DVD equipment, unfinalize the disc.

Note

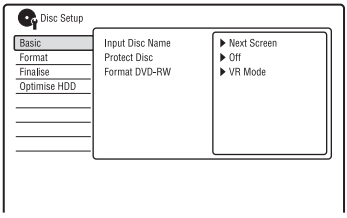
The recorder is not able to unfinalize DVD-RWs (Video mode) that have been finalized on another recorder.

1 **Insert a disc.**

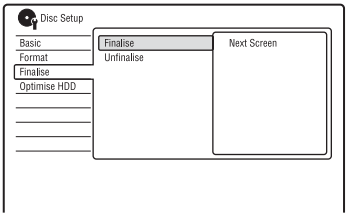
See “1. Inserting a Disc” on page 30.

2 **Press DISC SETUP.**

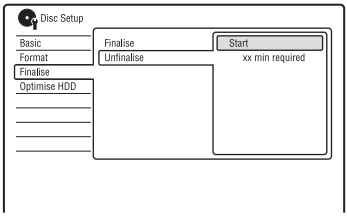
The “Disc Setup” menu appears.



3 **Select “Finalise,” and press ENTER.**



4 **Select “Unfinalise,” and press ENTER.**



5 **Select “Start,” and press ENTER.**

The recorder starts unfinalizing the disc. Unfinalizing may take several minutes.

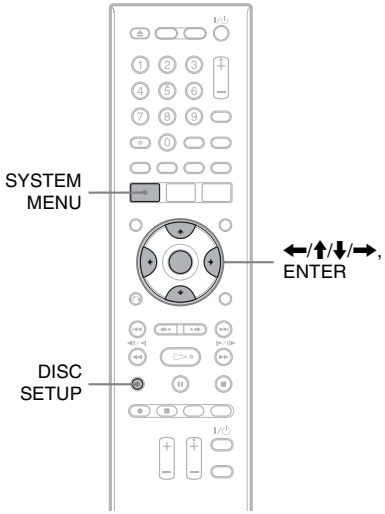
Hint

You can also select the “Disc Setup” menu in the System Menu.

8. Reformatting a Disc

+RW -RWVR -RWVideo -RVR -RVideo

New discs are automatically formatted when inserted. If necessary, you can manually re-format a DVD+RW, DVD-RW, or DVD-R disc to make a blank disc. For DVD-RWs or DVD-Rs, you can select a recording format (VR mode or Video mode) according to your needs.

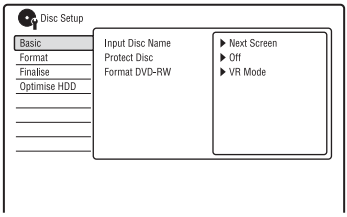


1 Insert a disc.

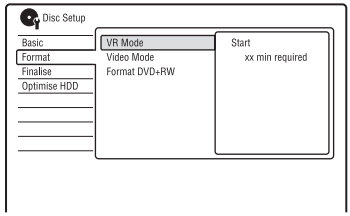
See "1. Inserting a Disc" on page 30.

2 Press DISC SETUP.

The "Disc Setup" menu appears.



3 Select "Format," and press ENTER.



4 Select an item, and press ENTER.

"VR Mode": Formats DVD-RWs/DVD-Rs (VR mode or unrecorded discs) in VR mode.
"Video Mode": Formats DVD-RWs/DVD-Rs in Video mode.
"Format DVD+RW": Formats DVD+RWs.

5 Select "Start," and press ENTER.

All contents on the disc are erased.

Hints

- By reformatting, you can change the recording format on DVD-RWs, or record again on DVD-RWs that have been finalized.
- You can also select the "Disc Setup" menu in the System Menu.

Note

You cannot reformat recorded DVD-Rs.

Before Recording

Before you start recording…

- Check that the disc has enough available space for the recording (page 35). For the HDD, DVD+RWs, and DVD-RWs, you can free up disc space by erasing titles (page 63).
- Adjust the recording picture quality if necessary (page 47).

Note

To play a recorded disc on other DVD equipment, finalize the disc (page 39).

Recording mode

Like the standard ×3 recording modes of video tapes, you can select the desired recording mode using the REC MODE button.

Recording modes with higher quality provide a more beautiful recording, but the large data volume also results in a shorter recording time.

Conversely, a longer duration provides a longer recording time, but the lower data volume results in a coarser picture quality.

Press REC MODE repeatedly to switch the recording modes.

To select further options for recording mode, set “Manual Rec. Mode” to “On (go to setup)” in the “Recording” setup (page 107). To record pictures in higher quality than HQ mode on the HDD, set “Manual Rec. Mode” to “On (go to setup),” and then select “HQ+.” For details about manual recording mode, see page 107.

For timer recording, you can also select “AUTO” as recording mode, which maximizes the recording quality for the space available on the disc (if recording to DVD), or to fit onto a blank disc (if recording to HDD).

Hint

To easily select a manual recording mode, press REC MODE repeatedly to display “MN,” and select a manual recording mode using ←/→.

Recording mode	Approx. recording time (hours)	
	HDD	DVD[*1]
HQ (High quality)	34	1 hr. 1 min.
HSP ↑	50	1 hr. 30 min.
SP (Standard mode)	68	2
LSP ↓	84	2 hr. 30 min.
ESP ↓	100	3
LP ↓	135	4
EP ↓	200	6
SLP ↓	270	8
SEP[*2] (Long duration)	340	10

[*1] The approximate recording time is for 12 cm DVD discs.
The approximate recording times for DVD+R DL (Double Layer)/DVD-R DL (Dual Layer) discs are as follows:
HQ: 1 hour 51 minutes
HSP: 2 hours 41 minutes
SP: 3 hours 35 minutes
LSP: 4 hours 29 minutes
ESP: 5 hours 23 minutes
LP: 7 hours 11 minutes
EP: 10 hours 46 minutes
SLP: 14 hours 21 minutes
SEP: 17 hours 57 minutes

[*2] When recording to DVD+RW or DVD+R, SLP is the longest recording time available. If you select SEP, the recording mode will automatically revert to SLP.

→continued

Notes

- The maximum continuous recording time to the HDD is 12 hours for a single title. A title longer than 12 hours is divided.
- Situations below may cause slight inaccuracies with the recording time.
  – Recording a program with poor reception, or a program or video source of low picture quality.
  – Recording on a disc that has already been edited.
  – Recording only a still picture or just sound.
- Programs are recorded in the following aspect ratio.
  – In the original aspect ratio, when recording to the HDD (when "HDD Recording Format" is set to "Video Mode Off" in the "Recording" setup (page 109))/DVD-RWs/DVD-Rs (VR mode).
  – In 4:3, when recording to DVD+RWs/DVD+Rs.
  – When recording to DVD-R DLs (Video mode), the title is divided when the layer switches.

Recording stereo/SAP programs

The recorder can receive and record stereo/SAP programs.
Before recording SAP programs, press the AUDIO button to select the desired sound to record. Each time you press the button, you can switch sound from the followings:
"Stereo": select this if you want to record in stereo sound.
"Mono": select this if you want to record in monaural sound.
"SAP": select this if you want to record in SAP sound.

SAP (Second Audio Program)

When a SAP (Second Audio Program) is received, the "SAP" indicator lights up on the front panel display.

Hint

If there is no SAP sound while playing the recorded SAP program, even if you have selected "SAP" using the AUDIO button before recording, and the program is recorded on the HDD (when "HDD Recording Format" is set to "Video Mode Off" in the "Recording" setup (except in PCM recording mode) (page 109)) or DVD-RW/DVD-R formatted in VR mode (except in PCM recording mode), try to press the AUDIO button to switch the sound setting.

Notes

- Before recording, be sure to select the desired sound ("Stereo"/"Mono"/"SAP") for recording by pressing the AUDIO button. You cannot change the recording sound after the recording starts.
- If no SAP programs are broadcast in your area, the program is recorded in main sound, even if SAP sound is selected for recording.

Unrecordable pictures

Pictures with copy protection cannot be recorded on this recorder.

Copy control signals	Recordable discs
Copy-Free	HDD +RW -RW VR -RW Video +R -R VR -R Video
Copy-Once	HDD -RW VR (CPRM*) -R VR (CPRM*)
Copy-Never	None

* The recorded disc can be played only on CPRM compatible equipment (page 9).

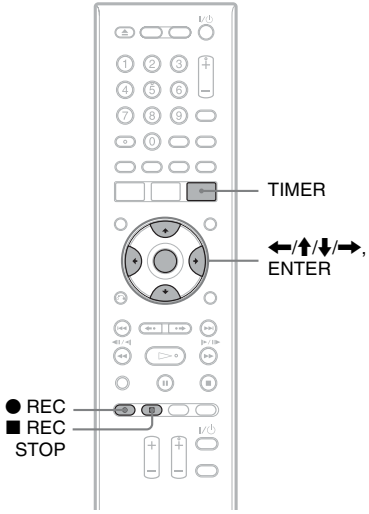
Timer Recording

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can set the timer for a total of 32 programs, up to 30 days in advance.
Set the date, time, and channel of the program manually.

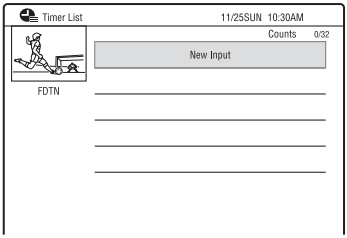
Note

Do not operate your cable box or satellite receiver just before or during a timer recording. This may prevent the accurate recording of a program.

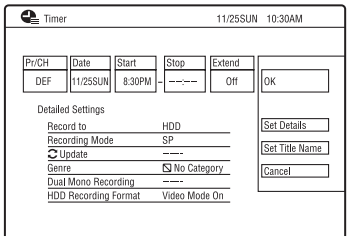


1 Press TIMER.

The "Timer List" display appears.



2 Select the "New Input" row, and press ENTER.



3 Select an item using ←/→ and adjust using ↑/↓. Then press ENTER.

The adjustable items are listed below.
"Pr/CH": Sets the channel, LINE IN 1, 2 or 3.
"Date": Sets the date (up to 30 days later). Select a recording pattern by pressing ↑ repeatedly to set the timer for the same daily or weekly programs.
"Start": Sets the start time.
"Stop": Sets the stop time.
"Extend": Sets the duration when a timer recording is in progress. If the program set to be recorded daily or weekly is extended, the manually extended time set here will be added to the subsequent timer recording times.

- If you want to make the detailed settings, select "Set Details" and press ENTER. Select an item using ↑/↓ and set using ←/→.
  "Record to": Sets the recording destination. If there is not enough available DVD disc space for the recording, the recorder automatically records the program to the HDD even if you select "DVD" (Recovery Recording).
  "Recording Mode": Sets the recording mode (page 43).
  "Update": Sets the recorder automatically replacing the previous timer recording with the new one.
  "Genre": Sets the genre.
  "Dual Mono Recording": Sets the sound to be recorded (page 104). If you want to make detailed settings, set the following:
  - Set LINE IN 1, 2 or 3 in "Pr/CH."
  - Select "Dual Mono" in "External Audio" in the "Audio In" setup (page 104).

→continued

- Select one of the following settings: "Video Mode On" in "HDD Recording Format" (page 109), "PCM" in "Recording Mode," or "DVD" in "Record to."

"HDD Recording Format": Sets the recording format of HDD (page 109).

- To enter a title name, select "Set Title Name" and press ENTER (page 36).
- If you make a mistake, select the item and change the setting.

4 Select "OK," and press ENTER.

The "Timer List" display appears (page 48).

The timer recording indicator lights up on the front panel display and the recorder is ready to start recording. Unlike a VCR, there is no need to turn off the recorder before the timer recording starts.

To stop recording during timer recording

Press ■ REC STOP.

Note that it may take a few seconds for the recorder to stop recording.

On-screen instructions may appear after pressing ■ REC STOP. In this case, follow the on-screen instructions.

Rec. Mode Adjust

If there is not enough available disc space for the recording, the recorder automatically adjusts the recording mode to enable the entire program to be recorded. Set "Rec. Mode Adjust" to "On" in the "Recording" setup (page 108).

If the timer settings overlap

The confirmation screen appears.

To store the setting, select "Yes."

To cancel the overlapped setting, select "No."

To confirm, change, or cancel a timer recording

See "Checking/Changing/Canceling Timer Settings (Timer List)" on page 48.

Hints

- You can also display the Timer display by selecting "Timer Recording" from the System Menu.
- If you are recording to the HDD, you can play the title as it is being recorded by selecting the program title on the Title List (page 59).

Notes

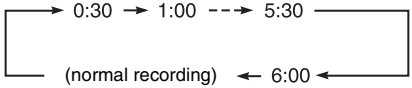
- If a message indicating that the HDD is full appears on the screen, change the recording destination to "DVD," or make available space for the recording (page 63).
- If there is not enough available DVD disc space for the recording, the recorder automatically records the program to the HDD even if you select "DVD" (Recovery Recording).
- Check that the clock is correctly set before setting the timer recording. If not, the timer recording cannot be made.
- To record a satellite or cable program, turn on the satellite receiver or cable box and select the program you want to record. Leave the satellite receiver or cable box turned on until the recorder finishes recording. If you connect equipment with a timer function, you can use the Synchro Rec function (page 50).
- Even if the timer is set for the same daily or weekly program, the timer recording cannot be made if it overlaps with a program that has priority. "Overlap" will appear next to the overlapped setting in the Timer List. Check the priority order of the settings (page 48).
- Even if the timer is set, timer recordings cannot be made while recording a program that has priority.
- The "Rec. Mode Adjust" function only works with a timer recording. It does not function with Quick Timer or Synchro Rec.

Using the Quick Timer function

You can set the recorder to record in 30-minute increments.

Press ● REC repeatedly to set the duration.

Each press advances the time in 30-minute increments. The maximum duration is six hours.



The time counter decreases minute by minute to 0:00, then the recorder stops recording (the power turns off).

To cancel the Quick Timer

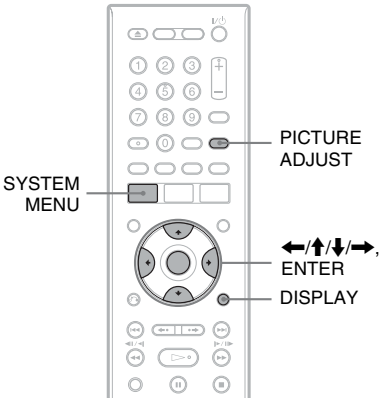
Press ● REC repeatedly until the counter appears in the front panel display. The recorder returns to normal recording mode. To stop recording, press ■ REC STOP.

Note

If you turn off the recorder during recording, recording is stopped.

Adjusting the recording picture quality

You can adjust the picture quality from the connected equipment, such as a TV or VCR , and also the picture quality of broadcasts that the recorder can receive by selecting a preset setting. You can also adjust the picture quality by changing detailed settings, and store up to three settings in the memory.



1 Press PICTURE ADJUST in stop mode.

The "Picture Adjustment" menu appears.

2 Select a preset setting, and press ENTER.

"Tuner": TV broadcasts
"VCR": Video cassettes
"DTV": Digital broadcasts
"Memory1"/"Memory2"/"Memory3": Your own settings. To create your own settings, see "To create your own setting" on page 47.
To check the detailed settings for the selected preset, press DISPLAY.

3 Press PICTURE ADJUST to exit.

Hint

You can also select the "Picture Adjustment" menu in the System Menu.

To create your own setting

1 Select "Memory1," "Memory2," or "Memory3" in step 3.

2 Select "Detailed Settings," and press ENTER.
The display for adjusting detailed settings appears.

3 Select an item using ↑/↓, and adjust settings using ←/→.
For details about each setting, see the explanation of the display.
"Prog. Motion": Adjusts the progressive video signal when "Component Video Out" is set to "Progressive" (page 103) or when using the HDMI connection.
Select "Motion" for a picture, including subjects that move dynamically.
Select "Still" for a picture with little movement.
"Cinema": Converts the progressive video signal to match the type of DVD software that you are watching when "Component Video Out" is set to "Progressive" (page 103) or when using the HDMI connection.
Select "Auto" to detect the software type (Film-based or Video-based) automatically and select the appropriate conversion mode. Normally select this position.
Select "Off" to fix the conversion mode to the mode for Video-based software.
"3-D Y/C": Adjusts the brightness/color separation for the video signals.
Select "Motion" for a picture, including subjects that move dynamically.
Select "Still" for a picture with little movement.
"YNR" (luminance noise reduction): Reduces noise contained in the luminance element of the video signal.
"CNR" (chroma noise reduction): Reduces noise contained in the chroma element of the video signal.
"Detail": Adjusts the sharpness of images outlines.
"White AGC": Turn on for automatic white level adjustment.

“White Enhancer”: Adjusts the intensity of white.
“Black Enhancer”: Adjusts the intensity of black.
“Black Level”: Selects the black level (setup level) for the video signals.
Select “ON” to set the black level of the input signals to the standard level. Normally, select this position.
Select “OFF” to lower the black level of the input signals to the standard level. Select this when the picture becomes too white.
“Hue”: Adjusts the color balance.
“Chroma Level”: Makes the colors deeper or lighter.

4 Press PICTURE ADJUST to exit.
The setting is automatically stored as the setting you selected in step 1.

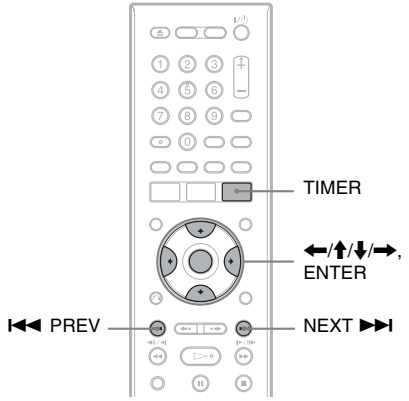
Creating chapters in a title

The recorder can automatically divide a recording (a title) into chapters by inserting chapter marks. To select chapter mark intervals or disable this function, see “Auto Chapter (HDD/VR),” “Auto Chapter (Video),” or “Auto Chapter (DVD+R/+RW)” in the “Recording” setup (page 108).
When recording to the HDD, a DVD-R (VR mode) or a DVD-RW (VR mode), you can edit chapter marks (page 66).

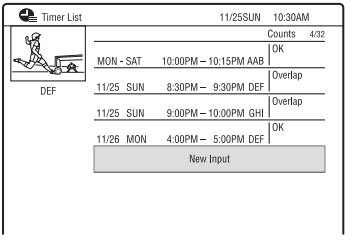
Checking/Changing/Canceling Timer Settings (Timer List)

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can check, change, or cancel timer settings using the Timer List.



1 Press TIMER.
The “Timer List” display appears.


Timer List
11/25SUN 10:30AM
Counts 4/32
DEF
MON - SAT 10:00PM – 10:15PM AAB OK
11/25 SUN 8:30PM – 9:30PM DEF Overlap
11/25 SUN 9:00PM – 10:00PM GHI Overlap
11/26 MON 4:00PM – 5:00PM DEF OK
New Input

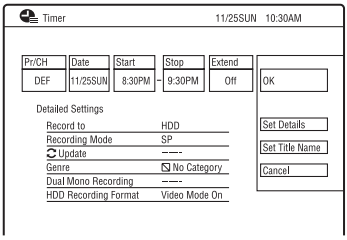
Timer information displays the recording date, time, recording mode, etc.

When all of the timer settings do not fit on the list, the scroll bar appears.
To view the hidden timer settings, press ↑/↓.

2 Select the timer setting you want to check/change/cancel, and press →.
The sub-menu appears.

3 Select an option, and press ENTER.

"Modify":
Changes the timer setting.
Select an item using ←/→ and adjust using ↑/↓. Select "OK," and press ENTER.



"Erase":
Erases the timer setting. Select "Yes," and press ENTER.
"Skip Once":
Cancels the daily or weekly recordings only once. After canceling the timer setting, "Skip Once" appears next to the timer setting in the Timer List.
To change or cancel the setting, repeat steps 2 and 3 above.

When the timer settings overlap

- The program that starts first has priority and the entire program is recorded.
- After finishing the previous recording, the other recording starts with several tens-of-second's delay (when the end-time of one recording and the start-time of another are the same).
- When the recordings start at the same time, only one of them will be recorded. Cancel the timer setting for the program that you are not going to record.

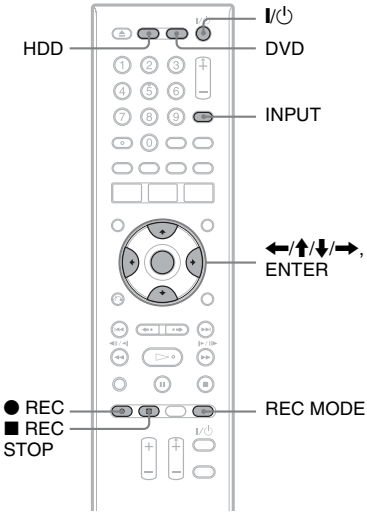
Hints

- While recording, you can modify the timer setting for the current recording.
- You can move to the first row/bottom row of the Timer List using ⏮ PREV/NEXT ⏭ while the list is displayed.

Notes

- Even if the timer is set, timer recordings cannot be made while recording a program that has priority.
- Even if the timer is set for the same daily or weekly program, the timer recording cannot be made if it overlaps with a program that has priority. "Overlap" will appear next to the overlapped setting in the Timer List. Check the priority order of the settings.

Recording from Connected Equipment



Recording from connected equipment with a timer (Synchro Rec.)

HDD

You can set the recorder to automatically record programs from connected equipment that has a timer function (such as a satellite receiver or cable box). Connect the equipment to the LINE IN 1 jacks of the recorder (page 29).
When the connected equipment turns on, the recorder starts recording a program from the LINE IN 1 jacks.
The recording destination is HDD only.

1 Press REC MODE repeatedly to select the recording mode.
For details about recording mode, see page 43.

2 Select the desired audio signal when recording a Dual Mono program.
Set "External Audio" to "Dual Mono" and "Dual Mono Recording" to "L" or "R" in the "Audio In" setup (page 103).

3 Set the timer on the connected equipment to the time of the program you want to record, and turn it off.

4 Press down ■ REC STOP on the recorder for more than 3 seconds.
The SYNCHRO REC indicator lights up in the front panel display and the recorder turns off. The recorder is ready to start Synchro-Recording.
You can also set the recorder to stand by for Synchro-Recording by setting "Synchro Rec." of "Timer Recording" to "Yes" from the System Menu.

To cancel Synchro Rec before recording starts
Press I/⏻.
The SYNCHRO REC indicator in the front panel display turns off.

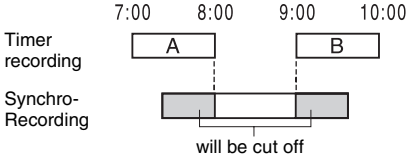
To cancel Synchro Rec during recording
Press down ● REC for more than 3 seconds. The Synchro Rec is canceled, and the recording continues.

To stop recording
Press ■ REC STOP. Then select "Yes" in the confirmation display, and press ENTER.

Notes
- The recorder starts recording only after detecting a video signal from the connected equipment. The beginning of the program may not be recorded regardless of whether or not the recorder's power is on or off.
- The Synchro Rec function does not work with some tuners. For details, see the tuner's operating instructions.
- While the recorder is standing by for Synchro-Recording, the Auto Clock Set function (page 100) does not work.
- To use the Synchro Rec function, you must first set the recorder's clock correctly.

If the timer settings of a Synchro-Recording and another timer recording overlap

Timer recordings always have priority. The Synchro-Recording starts only after the timer recording has finished.



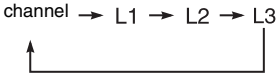
Recording from connected equipment without a timer

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can record from a connected VCR or similar device. To connect a VCR or similar device, see "Connecting a VCR or Similar Device" on page 26.
Use the DV IN jack on the front panel if the equipment has a DV output jack (i.LINK jack).

1 Press HDD or DVD.
If you select DVD, insert a recordable DVD (see "1. Inserting a Disc" on page 30).

2 Press INPUT to select an input source according to the connection you made.
The front panel display changes as follows:



3 Select the desired audio signal when recording a Dual Mono program.
Set "External Audio" to "Dual Mono" and "Dual Mono Recording" to "L" or "R" in the "Audio In" setup (page 103).

4 Press REC MODE repeatedly to select the recording mode.
For details about the recording mode, see page 43.

5 Insert the source tape into the connected equipment and set to playback pause.

6 Press ● REC.
This recorder starts recording.

7 Press the pause (or play) button on the connected equipment to cancel the playback pause status.
The connected equipment starts playback and the playback image is recorded by this recorder.
To stop recording, press ■ REC STOP on this recorder.

If you connect a digital video camera with a DV IN jack

See "DV Camcorder Dubbing" on page 75 for an explanation of how to record from the DV IN jack.

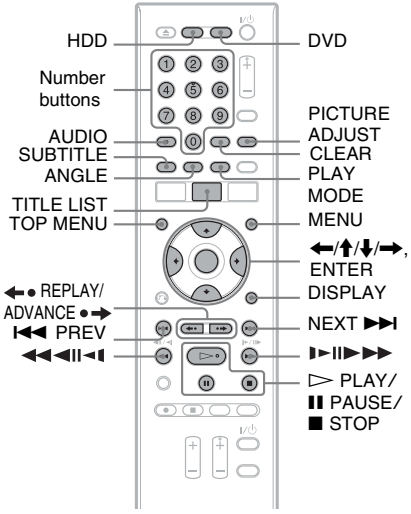
Hint
You can adjust the settings for the recording picture before recording. See "Adjusting the recording picture quality" on page 47.

Notes
- When recording a video game image, the screen may not be clear.
- Any program that contains a Copy-Never copy guard signal cannot be recorded.

Playing the Recorded Program/DVD

HDD +RW -RWVR -RWVideo +R -RVR -RVideo DVD VCD DATA DVD * DATA CD *

* DivX video file only

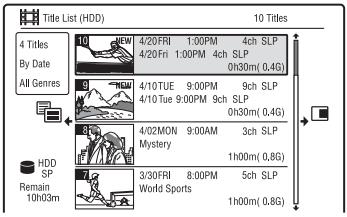


1 Press HDD or DVD.

- If you select DVD, insert a disc (see "1. Inserting a Disc" on page 30).
- If you insert a DVD VIDEO, VIDEO CD, DATA DVD or DATA CD, press ▷ PLAY. Playback starts.

2 Press TITLE LIST.

For details about the Title List, see "3. Playing the Recorded Program (Title List)" on page 32.
Example: HDD



3 Select a title using ↑/↓, and press ENTER.

Playback starts from the selected title.

To use the DVD's Menu

When you play a DVD VIDEO, or a finalized DVD+RW, DVD-RW (Video mode), DVD+R, or DVD-R (Video mode), you can display the disc's menu by pressing TOP MENU or MENU.

Note

The ▷ PLAY button is not available in the disc's menu.

To play VIDEO CDs/Super VIDEO CDs with PBC functions

PBC (Playback Control) allows you to play VIDEO CDs/Super VIDEO CDs interactively using the menu on your TV screen.
When you start playing a VIDEO CD/Super VIDEO CD with PBC functions, the menu appears.
Select an item using the number buttons, and press ENTER. Then, follow the instructions in the menu (press ▷ PLAY when "Press SELECT" appears).

Note

Some playback options such as search, repeat play or program play cannot be played wih PBC function. To play with playback options, start playback without PBC functions using the Title List.

To change the angles

If various angles (multi-angles) for a scene are recorded on the disc, " " appears on the screen. Press ANGLE during playback. To switch the angle mark indicator to off, set "Angle Indicator" to "Off" in the "Playback" setup (page 111).

To stop playback

Press ■ STOP.

To playback quickly with sound (Scan Audio)

When you press ▶▶ during playback, you can play quickly with dialog or sound (except for VIDEO CDs/Super VIDEO CDs).
No sound is output when you press ▶▶ two or more times to change search speed.

To display the registration code for this recorder

Select "Registration Code" of "DivX" in the "Options" setup (page 115).

To resume playback from the point where you stopped (Resume Play)

When you press ▷ PLAY again after you stop playback, the recorder resumes playback from the point where you pressed ■ STOP.

To start from the beginning, press ■ STOP again, and press ▷ PLAY. Playback starts from the beginning of the title/track/scene.

The point where you stopped playing is cleared when:
– you open the disc tray (except HDD).
– you play another title (except HDD).
– you start playback using the Title List (except HDD).
– you edit the title after stopping playback.
– you change the settings on the recorder.
– you make a recording (except HDD/DVD-RWs/DVD-Rs in VR mode).
– you disconnect the AC power cord.

Note

Resume Play is not available for Super VIDEO CDs.

To play restricted DVDs (Parental Control)

If you play a restricted DVD, the display for entering your password appears on your TV screen.
Enter your four-digit password using the number buttons, and press ENTER.
The recorder starts playback.

To register or change the password, see "Parental Control (DVD VIDEO only)" on page 110.

To lock the recorder (Child Lock)

You can lock all of the buttons on the recorder so that the settings are not canceled by mistake.
When the recorder is turned off, hold down ■ (stop) on the recorder until "LOCKED" appears in the front panel display. The recorder does not work except for timer recordings while the Child Lock is set.

To unlock the recorder, hold down ■ (stop) on the recorder until "UNLOCKED" appears in the front panel display.

One-Touch Play (for HDMI connections only)

Press ▷ PLAY. With one touch of the ▷ PLAY button, the recorder and your TV automatically turn on and the TV's input is switched to the recorder. Playback starts automatically.
Set "HDMI Output" to "On" in the "HDMI Control" setup (page 113) to use the One-Touch Play function.

Hint

You can also use the ▷ PLAY button in step 3 (page 52) to start playback.

Note

When using the HDMI connection, there may be a delay, before the playback picture appears on the TV screen, and the beginning portion of the playback picture may not be displayed.

Playback options

To check the position of the buttons below, see the illustration on page 52.

Buttons	Operations
AUDIO HDD -RWVR -RVR DVD VCD DATA DVD * DATA CD * * DivX video file only	Selects one of the audio tracks recorded on the disc when pressed repeatedly in normal playback mode. DVD DATA DVD * DATA CD *: Selects the language. HDD -RWVR -RVR : Selects the main or sub sound. VCD : Selects stereo or monaural audio tracks.
SUBTITLE DVD DATA DVD * DATA CD * * DivX video file only	Selects a subtitle language when pressed repeatedly.
⏮• REPLAY/ ADVANCE •⏭ (instant replay/instant advance)	Each time you press ⏮• REPLAY, replays the scene for the following duration. 5 seconds → 15 seconds → 30 seconds → 1 minute → 2 minutes → 3 minutes → 5 minutes → 10 minutes → 20 minutes → advances the time in 10-minute increments → 2 hours Each time you press ADVANCE •⏭, briefly fast forwards the current scene for the following duration. 30 seconds → 1 minute → 1 minute 30 seconds → 2 minutes → 3 minutes → 5 minutes → 10 minutes → 20 minutes → advances the time in 10-minute increments → 2 hours
⏮ PREV/NEXT ⏭	Goes to the beginning of the previous/next title/chapter/scene/track when pressed during playback. Goes to the beginning of the first title/track when pressed in stop mode.
◀◀ ◀II ◀I/I▶ II▶ ▶▶ (fast reverse/fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse fast forward ◀◀FR1*1 ← → ▶▶FF1*2 ◀◀FR2 ← ← → → ▶▶FF2 ◀◀FR3*3 ← ← ← → → → ▶▶FF3*3 ◀◀FR4*3 ← ← ← ← → → → → ▶▶FF4*3 When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. *1 When you press ◀◀ once during playback, you can play Reverse play (not available for VIDEO CDs/Super VIDEO CDs/DivX video files). *2 When you press ▶▶ once during playback, you can play quickly with sound (not available for VIDEO CDs/Super VIDEO CDs). *3 Not available for VIDEO CDs/Super VIDEO CDs. To resume normal playback, press ▷ PLAY.

Buttons	Operations
◀◀ ◀II ◀❚/❚▶ II▶ ▶▶ (slow, freeze frame) HDD +RW -RWVR -RWVideo +R -RVR -RVideo DVD VCD *1 DATA DVD *1*2 DATA CD *1*2 *1 Playback direction only *2 DivX video file only	Plays in slow motion when pressed for more than one second in pause mode. Plays one frame at a time when pressed briefly in pause mode. To resume normal playback, press ▷ PLAY.
II PAUSE	Pauses playback. To resume normal playback, press ▷ PLAY.

Notes

- Angles and subtitles cannot be changed with titles recorded on this recorder.
- JPEG image files made with a DVD camcorder can only be played as a slideshow. For video files containing JPEG image files and movies, the recorder can play movie parts only.

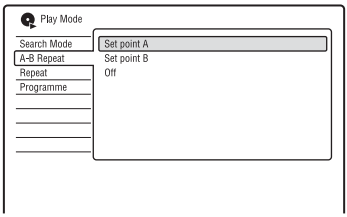
Notes on playing DVDs with a DTS sound track

DTS audio signals are output only through the DIGITAL OUT (COAXIAL) jack.
When you play a DVD with DTS sound tracks, set "DTS Output" to "On" in the "Audio Out" setup (page 105).

Playing a specific portion repeatedly (A-B Repeat)

1 Press PLAY MODE during playback.
The “Play Mode” menu appears.

2 Select “A-B Repeat,” and press ENTER.
“Set point A” is selected.



3 While monitoring the sound, press ENTER at the starting point (point A) of the portion to be played repeatedly.
“Set point B” is selected.

4 Continue playing to locate the ending point (point B), and press ENTER.
A-B Repeat starts.

To cancel A-B Repeat

Press CLEAR. Or, set “A-B Repeat” to “Off” in the “Play Mode” menu.

Hint

You can select “A-B Repeat” from “Play Mode” in the System Menu.

Note

When playing an HDD/DVD VIDEO/DVD-RW (Video mode)/DVD-R (Video mode), set the start and stop points within the same title.

Playing repeatedly (Repeat)

You can play repeatedly all the titles/tracks/files or a single title/chapter/track on the HDD or a disc.

1 Press PLAY MODE during playback.
The “Play Mode” menu appears.

2 Select “Repeat,” and press ENTER.

3 Select an item to be repeated using ↑/↓.
“Repeat Title” (for HDD/DVDs/DATA DVDs*1/DATA CDs*1): repeats the current title.
“Repeat Chapter” (for HDD/DVDs): repeats the current chapter.
“Repeat Track” (for VIDEO CDs*2): repeats the current track.
“Repeat Programme”: repeats the current program (page 57).
“Repeat Disc” (for VIDEO CDs*2/DVD-RWs/DVD-Rs (VR mode)): repeats all of the tracks on a disc.
*1 DivX video file only
*2 Available only when playing without PBC functions

4 Press ENTER.
Repeat play starts.

To cancel Repeat play

Press CLEAR. Or, set “Repeat” to “Repeat Off” in the “Play Mode” menu.

Hint

You can select “Repeat” from “Play Mode” in the System Menu.

Note

You cannot select “Repeat Programme” when no program remains.

Creating your own program (Programme)

HDD -RW Video * -R Video * VCD

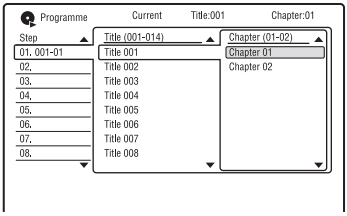
* finalized disc only

You can play the contents of the HDD or a disc in the order you want by arranging the order of the titles/chapters/albums/tracks on the HDD or disc to create your own program. You can make a program of up to 24 steps.

1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "Programme," and press ENTER.

3 Select "Input/Edit Programme," and press ENTER.
The "Input/Edit Programme" display differs depending upon the disc type.
Example: DVD



4 Select a title or album (example: Title 001) using ↑/↓, and press ENTER.

5 Select a chapter or track (example: Chapter 01) using ↑/↓, and press ENTER.
The chapter or track is programed.
If you make a mistake, select the step number (example: 01.) using ←/↑/↓, and press CLEAR.

6 To program other chapters or tracks, press ←/↑/↓/→ to select a step number, and repeat steps 4 and 5.

7 Press ▷ PLAY.
Programme play starts.

To cancel Programme play
Press CLEAR during playback. Or, set "Programme" to "Cancel Programme Play" in the "Play Mode" menu.

To erase the program
Press CLEAR in stop mode. Or, set "Programme" to "Erase Programme List" in the "Play Mode" menu.

Hints
- The program you made remains after Programme play finishes. To play the same program again, set "Programme" to "Start Programme Play" in the "Play Mode" menu. However, the program is cleared after you remove the disc or press I/⏻.
- You can repeat Programme play. Set "Repeat" to "Repeat Programme" in the "Play Mode" menu (page 56).
- You can select "Programme" from "Play Mode" in the System Menu.

Adjusting the picture quality

HDD +RW -RW VR -RW Video +R -R VR -R Video DVD VCD DATA DVD * DATA CD *

* DivX video file only

You can adjust the picture quality from connected equipment, such as a TV or projector by selecting a preset setting. You can also adjust the picture quality by changing detailed settings, and store up to three settings in the memory.

1 Press PICTURE ADJUST during playback or in pause mode.
The "Picture Adjustment" menu appears.

2 Select a preset setting using ←/→, and press ENTER.
Dynamic: produces a bold dynamic picture by increasing the picture contrast and the color intensity.
Standard: displays a standard picture.
Professional: displays an original picture.
Memory1/Memory2/Memory3: Your own settings. To create your own settings, see "To create your own setting" below.

To check the detailed settings for the selected preset, press DISPLAY.

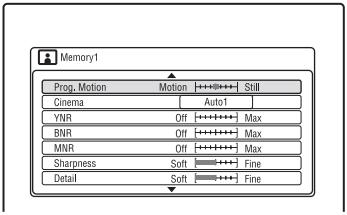
→continued

3 Press PICTURE ADJUST to exit.

To create your own setting

1 Select “Memory1,” “Memory2,” or “Memory3” in step 3.

2 Select “Detailed Settings,” and press ENTER.
The display for adjusting detailed settings appears.



3 Select an item using ↑/↓, and adjust settings using ←/→.
For details about each setting, see the explanation of the display.
“Prog. Motion”: Adjusts the progressive video signal when “Component Video Out” is set to “Progressive” (page 103), or when “Screen Resolution” is set to other than “720 x 480i” (page 112).
Select “Motion” for a picture, including subjects that move dynamically.
Select “Still” for a picture with little movement.
“Cinema”: Converts the progressive video signal to match the type of DVD software that you are watching when “Component Video Out” is set to “Progressive” (page 103), or when “Screen Resolution” is set to other than “720 x 480i” (page 112).
Select “Auto1” to automatically detect the software type (Film-based or Video-based) and select the appropriate conversion mode. Normally select this position.
If the picture appears unnatural, select “Auto2,” “On,” or “Off.”
“YNR” (luminance noise reduction): Reduces noise contained in the luminance element of the video signal.
“BNR” (block noise reduction): Reduces “block noise” or mosaic-like patterns in the picture.
“MNR” (mosquito noise reduction): Reduces the faint noise appearing around the outlines of the images. The noise reduction effects are automatically adjusted within each setting range according to the video bit rate and other factors.
“Sharpness”: Sharpens the outlines of the images.
“Detail”: Adjusts the sharpness of images outlines.
“White Enhancer”: Adjusts the intensity of white.
“Black Enhancer”: Adjusts the intensity of black.
“Black Level”: Selects the black level (setup level) for the video signals.
Select “ON” to set the black level of the input signals to the standard level. Normally, select this position.
Select “OFF” to lower the black level of the input signals to the standard level. Select this when the picture becomes too white.
“Gamma Correction”: Adjusts how dark areas look.
“Hue”: Adjusts the color balance.
“Chroma Level”: Makes the colors deeper or lighter.

4 Press PICTURE ADJUST to exit.
The setting is automatically stored as the setting you selected in step 1.

Hint

You can also select the “Picture Adjustment” menu in the System Menu.

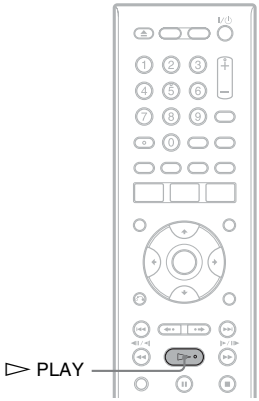
Notes

- If the outlines of the images on your screen become blurred, set “BNR” and/or “MNR” to “Off.”
- Depending on the disc or the scene being played, the above BNR or MNR effects may be hard to discern. Also, these functions may not work with some screen sizes.
- The following settings are not available for the signals output from the HDMI jack.
  – “Sharpness”
  – “White Enhancer”
  – “Black Enhancer”
  – “Black Level”
  – “Gamma Correction”
  – “Hue”
  – “Chroma Level”

Playing from the Beginning of the Program You Are Recording (Chase Play)

HDD

"Chase Play" allows you to view the recorded part of a program on the HDD while the recording is being made. You do not need to wait until the recording finishes.



Press PLAY while recording.

Playback starts from the beginning of the program you are recording.
When you fast forward to the point that you are recording, "Chase Play" returns to normal playback.

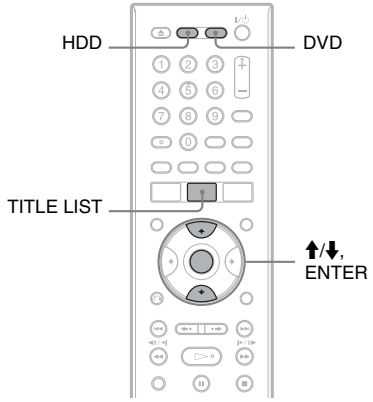
Playing a Previous Recording While Making Another (Simultaneous Rec and Play)

HDD +RW -RWVR -RWVideo +R -RVR -RVideo DVD VCD DATA DVD DATA CD

"Simultaneous Rec and Play" allows you to view a previously recorded program while recording programs. Playback continues even if a timer recording starts. Use this function as follows:

- While recording to the HDD:
  Play another title on the HDD.
  Play a previously recorded program on a DVD by pressing the DVD button.
- While recording to a DVD:
  Play a previously recorded program on the HDD by pressing the HDD button.

You can also play a DVD VIDEO, VIDEO CD, Super VIDEO CD, DATA DVD, or DATA CD while recording on the HDD.



Example: Play another title on the HDD while recording to the HDD.

1. While recording, press TITLE LIST to display the HDD Title List.
2. Select the title you want to play, and press ENTER.
   Playback starts from the selected title.

Example: Play a DVD while recording to the HDD.

1 While recording, press DVD and insert the DVD into the recorder.

2 Press TITLE LIST to display the DVD Title List.

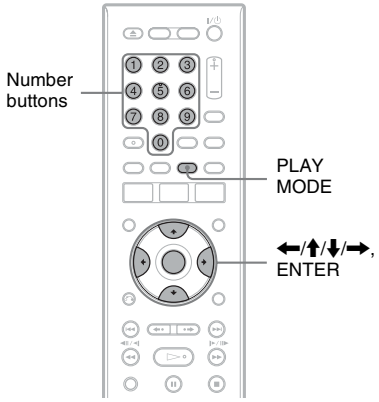
3 Select the title you want to play, and press ENTER.
Playback starts from the selected title.

Searching for a Time/ Title/Chapter/Track, etc.

HDD +RW -RW VR -RW Video +R -R VR -R Video DVD VCD DATA DVD * DATA CD *

* DivX video file only

You can search a disc by title, chapter, scene or track. As titles and tracks are assigned individual numbers, select the title or track by entering its number. You can also search for a scene using the time code.



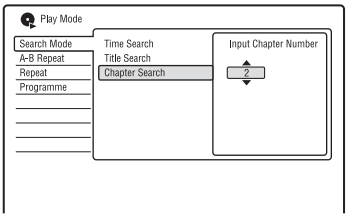
1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "Search Mode," and press ENTER.

3 Select a search method, and press ENTER.
"Time Search" (for HDD/DVDs/DATA DVDs*1/DATA CDs*1/VIDEO CDs*2): Searches for a starting point by entering the time code.
"Title Search" (for HDD/DVDs/DATA DVDs*1/DATA CDs*1)
"Chapter Search" (for HDD/DVDs)
"Track Search" (for VIDEO CDs*3)

*1 DivX video file only
*2 Except Super VIDEO CDs
*3 Available only when playing without PBC functions

The display for entering the number appears.
Example: Chapter Search



4 Press the number buttons to select the number of the title, chapter, time code, etc., you want.

For example: Time Search
To find a scene at 2 hours, 10 minutes, and 20 seconds, enter “21020.”
If you make a mistake, select another number.

5 Press ENTER.

The recorder starts playback from the selected number.

Before Editing

This recorder offers various edit options for various disc types.

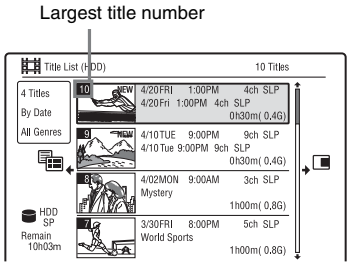
Notes

- You may lose the edited contents if you remove the disc or a timer recording starts while editing.
- DVD discs created by DVD camcorders cannot be edited on this recorder.
- If a message appears and indicates that the disc's control information is full, erase or edit unnecessary titles.
- The remaining disc space displayed on the screen may differ from the actual remaining disc space.
- When editing a DVD+R or DVD-R, finish all editing before finalizing the disc. You cannot edit a finalized disc.

Edit features		HDD	+RW -RW Video +R -R Video	-RW VR -R VR	
				Original title	Playlist title
Title edit	Erase (page 63)	Yes	Yes	Yes	Yes
	Title Name (page 63)	Yes	Yes	Yes	Yes
	Set Thumbnail (page 63)	Yes	Yes	Yes	Yes
	A-B Erase (page 64)	Yes	No	Yes	Yes
	Divide (page 65)	Yes	No	No	Yes
	Set Genre (page 63)	Yes	No	No	No
	Protect (page 63)	Yes	Yes	Yes	No
	Move (page 68)	No	No	No	Yes
	Combine (page 68)	No	No	No	Yes
	Genre Name (page 63)	Yes	No	No	No
	Editing multiple titles (Multi-Mode) (page 64)	Yes	No	No	No
	Creating a Playlist (page 67)	No	No	No	Yes
	Undo (page 63)	No	Yes	Yes	Yes
Chapter edit	Divide (page 66)	Yes	No	Yes	Yes
	Erase (page 67)	Yes	No	Yes	Yes
	Move (page 68)	No	No	No	Yes
	Combine (page 67)	Yes	No	Yes	Yes

To open up disc space

To open up disc space on a DVD+RW or DVD-RW (Video mode), erase the title with the largest number in the title list.



To open up disc space on the HDD or a DVD-RW (VR mode), you can erase any title.
See "Erasing and Editing a Title" on page 63.
For DVD-Rs and DVD+Rs, the available disc space does not increase even if you erase titles.

To switch between the Playlist and Original Title List (DVD-RW/DVD-R in VR mode only)

You can display the Playlist titles in the Title List (Playlist), or the Original titles in the Title List (Original).

1 Press ← while the Title List is displayed.

2 Select "Play List" using ↑/↓, and press ENTER.

3 Select "Original" or "Play List" using ↑/↓, and press ENTER.

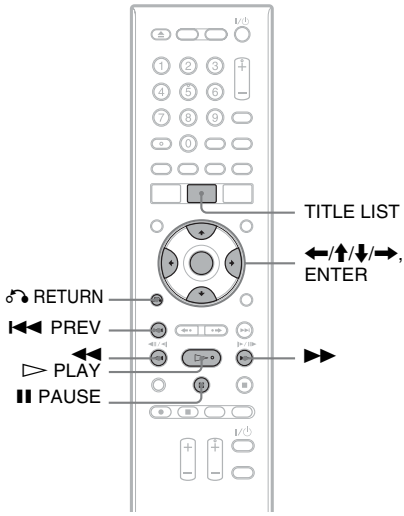
About editing accuracy

When editing the titles recorded on the HDD, you can select the type of editing.
"Video Mode Compatible Editing":
Recommended if you are going to dub the titles to DVD-RWs/DVD-Rs (Video mode) or DVD+RWs/DVD+Rs afterward by High-speed dubbing. The editing points and chapter marks may be slightly different from those you selected.
"Frame Accurate Editing":
Recommended when you want to edit titles precisely. However, the editing points may be slightly different from the point you selected when you dub the titles by High-speed dubbing.

Erasing and Editing a Title

HDD +RW -RW VR -RW Video +R -R VR -R Video

This section explains the basic edit functions. Note that editing is irreversible. To edit DVD-RWs/DVD-Rs (VR mode) without changing the original recordings, create a Playlist title (page 67).



1 Press TITLE LIST.
For DVD-RWs/DVD-Rs in VR mode, switch the Title List (Original or Playlist), if necessary.

2 Select a title, and press →.
The sub-menu appears.

3 Select an option, and press ENTER.
You can make the following edits to the title.
"Erase": Erases the selected title. Select "Yes" when asked for confirmation.
"Edit": Allows you to make the following edits.
- "Title Name": Allows you to enter or re-enter a title name (page 36).
- "Set Thumbnail": Changes the title's thumbnail picture that appears in the Title List (page 34).

- “A-B Erase”: Erases a section of the title (page 64).
- “Divide”: Divides a title into two titles (page 65).
- “Chapter Edit”: Edits chapters in a title (page 66).
- “Set Genre”: Assigns a genre to a title.
- “Protect”: Protects the title. “🔒” appears next to the protected title.
- “Move”: Changes the title’s playing order (page 68).
- “Combine”: Combines two titles into one (page 68).

“Genre Name”: Allows you to enter a genre name (up to 12 characters) (page 36).
“Multi-Mode”: Allows you to select and edit multiple titles at one time (page 64).
“Create”: Creates a Playlist (page 67).
“Undo”: Undoes the last edit you made.

Hint
You can label or re-label DVDs (page 38).

Editing multiple titles (Multi-Mode)

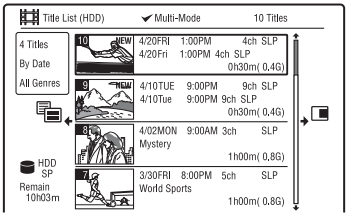
HDD

You can select and edit up to 24 titles at one time.

1 Press TITLE LIST.

2 Press ➡.
The sub-menu appears.

3 Select “Multi-Mode,” and press ENTER.
The display for selecting titles to be edited appears.



4 Select a title, and press ENTER.
A check mark appears in the check box. To clear the check mark, press ENTER again.

5 Repeat step 4 to select all of the titles you want to edit.

6 When you finish selecting titles, press ➡.
The sub-menu appears.

7 Select an option, and press ENTER.
“Erase”: Erases the selected titles.
“Protect”: Protects the titles. “🔒” appears next to the protected title.
“Unprotected”: Unprotects the titles.
“Change Genre”: Changes the genre of the titles.

Hint
You can exit “Multi-Mode” by pressing ➡ and selecting “Single-Mode” while selecting titles.

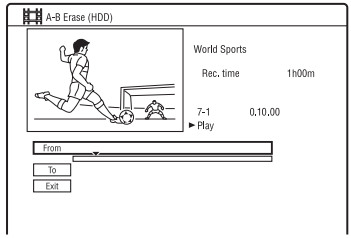
Erasing a section of a title (A-B Erase)

HDD -RWVR -RVR

You can select a section (scene) in a title and erase it. Note that erasing scenes in a title cannot be undone.

1 After step 2 of “Erasing and Editing a Title,” select “Edit,” and press ENTER.

2 Select “A-B Erase,” and press ENTER.
For the HDD, select a type of editing, and press ENTER. For details, see page 63.
The display for setting point A appears. The title starts to play.



3 **Select point A using ◄◄/►► or ▷ PLAY, and press ❚❚ PAUSE.**
- To return to the beginning of the title, press ❚❚ PAUSE and then press ⏮ PREV.

4 **Select "From," and press ENTER.**
The position of point A is displayed.

5 **Press ▷ PLAY.**

6 **Select point B using ◄◄/►► or ▷ PLAY, and press ❚❚ PAUSE.**

7 **Select "To," and press ENTER.**
The position of point B is displayed.

8 **Select "Yes," and press ENTER.**
The scene is erased.

To cancel "A-B Erase"

Press ↩ RETURN. The Title List appears.

Hint

A chapter mark is inserted after the scene is erased. The chapter mark divides the title into separate chapters on either side of the mark.

Notes

- Images or sound may be momentarily interrupted at the point where you erase a section of a title.
- Sections shorter than five seconds may not be erased.

Dividing a title (Divide)

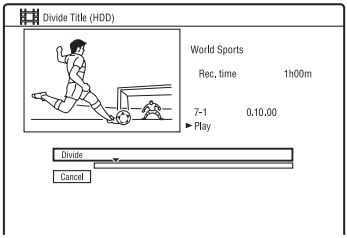
HDD -RWVR * -RVR *

If you want to dub a long title to a disc but do not want to reduce the picture quality, divide the title into two shorter titles. Note that dividing a title cannot be undone.

* Only playlist titles can be divided for DVD-RWs/DVD-Rs in VR mode.

1 **After step 2 of "Erasing and Editing a Title," select "Edit," and press ENTER.**

2 **Select "Divide," and press ENTER.**
For the HDD, select a type of editing, and press ENTER. For details, see page 63.
The display for setting the dividing point appears.
The title starts to play.



3 **Select the dividing point using ◄◄/►► or ▷ PLAY, and press ❚❚ PAUSE.**
- To return to the beginning of the title, press ❚❚ PAUSE and then press ⏮ PREV.

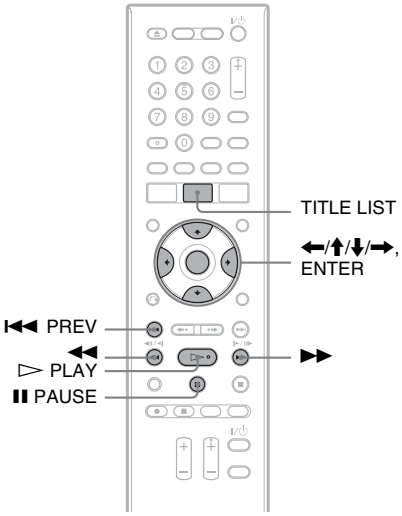
4 **Press ENTER.**
For the HDD, The display asks for confirmation.

5 **Select "Yes," and press ENTER.**
The title is divided into two.

Erasing and Editing a Chapter

HDD -RWVR -RVR

You can edit individual chapters within a title. To edit DVD-RWs/DVD-Rs (VR mode) without changing the original recordings, create a Playlist (page 67).



1 Press TITLE LIST.
For DVD-RWs/DVD-Rs in VR mode, switch the Title List (Original or Playlist), if necessary.

2 Select a title containing the chapter you want to edit, and press →.
The sub-menu appears.

3 Select "Edit," and press ENTER.

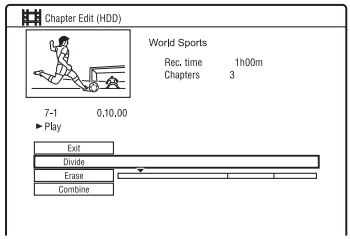
4 Select "Chapter Edit," and press ENTER.
For the HDD, select a type of editing, and press ENTER. For details, see page 63.

5 Select an option, and press ENTER.
You can make the following edits to the chapter.
"Divide": Divides a chapter into two (page 66).
"Erase/Move"
- "Erase": Erases the selected chapter (page 67).
- "Move" (for Playlist titles on DVD-RWs/DVD-Rs in VR mode): Changes the chapter's playing order (page 68).

"Combine": Combines two chapters into one (page 67).

Dividing a chapter (Divide)

1 After step 4 of "Erasing and Editing a Chapter," select "Divide."



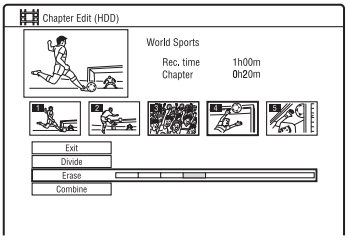
2 Select a chapter using ←/→, and press ENTER.
The chapter starts to play.

3 Select the dividing point using ◀◀/▶▶ or ▷ PLAY, and press ❚❚ PAUSE.
- To return to the beginning of the chapter, press ❚❚ PAUSE and then press ⏮ PREV.

4 Press ENTER.
The chapter is divided into two.

Erasing a chapter (Erase)

1 After step 4 of "Erasing and Editing a Chapter," select "Erase/Move."



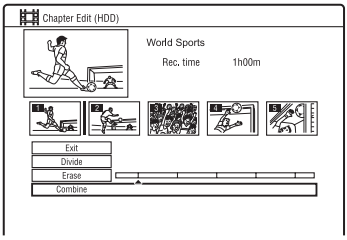
2 Select a chapter using ←/→, and press ENTER.

3 Select "Erase," and press ENTER.
The display asks for confirmation.

4 Select "Yes," and press ENTER.
The chapter is erased.

Combining multiple chapters (Combine)

1 After step 4 of "Erasing and Editing a Chapter," select "Combine."



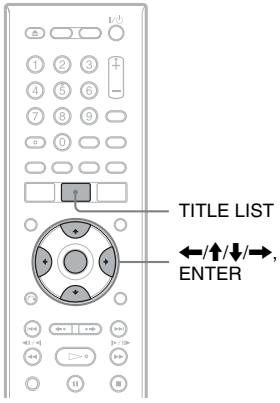
2 Move the combining bar using ←/→, and press ENTER.
The two adjacent chapters of the combining bar are combined.

Creating and Editing a Playlist

-RWVR -RVR

Playlist edit allows you to edit or re-edit without changing the actual recordings. You can create up to 99 Playlist titles.

Note
Playlist titles containing titles recorded with the "Copy-Once" copy protection signal cannot be dubbed or moved (page 70).



1 Press TITLE LIST.
Switch to the Playlist (page 63).

2 Press →.
The sub-menu appears.

3 Select "Create," and press ENTER.
The original titles in the Title List appear.

4 Select an original title to add to the Playlist, and press ENTER.
The selected title is added to the Playlist.

5 Repeat steps 3 and 4 to select all of the titles you want to add to the Playlist.

→continued

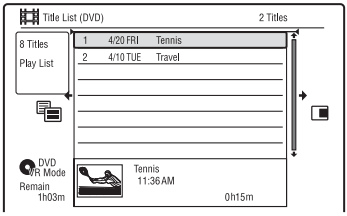
Moving a Playlist title (Move)

1 **Press TITLE LIST.**
Switch to the Playlist (page 63).

2 **Select a Playlist title, and press ➡.**
The sub-menu appears.

3 **Select "Edit," and press ENTER.**

4 **Select "Move," and press ENTER.**



5 **Select a new location for the title using ⬆/⬇, and press ENTER.**
The title moves to the new location.
• To move more titles, repeat from step 2.

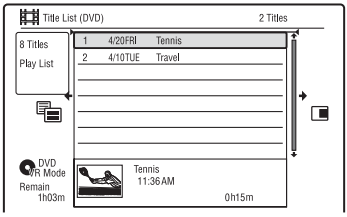
Combining multiple Playlist titles (Combine)

1 **Press TITLE LIST.**
Switch to the Playlist (page 63).

2 **Select a Playlist title, and press ➡.**
The sub-menu appears.

3 **Select "Edit," and press ENTER.**

4 **Select "Combine," and press ENTER.**



5 **Select a title you want to combine.**

6 **Select "Yes," and press ENTER.**
The titles are combined.

Dividing a Playlist title (Divide)

You can divide a Playlist title. For instructions, see page 65.

Moving a chapter (Move)

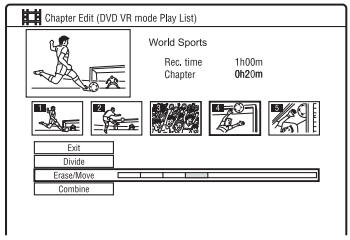
1 **Press TITLE LIST.**
Switch to the Playlist (page 63).

2 **Select a Playlist title containing the chapter you want to edit, and press ➡.**
The sub-menu appears.

3 **Select "Edit," and press ENTER.**

4 **Select "Chapter Edit," and press ENTER.**

5 **Select "Erase/Move."**



6 **Select a chapter using ⬅/➡, and press ENTER.**

7 **Select "Move," and press ENTER.**

8 **Select a new location for the chapter using ⬅/➡, and press ENTER.**
The chapter moves to the new location.

Before Dubbing

HDD +RW -RW VR -RW Video +R -R VR -R Video

In this section, “dubbing” refers to “copying a recorded title on the internal hard disk drive (HDD) to another disc, or vice versa.” You can dub a playing title using the HDD/DVD DUB button (see “HDD/DVD Dubbing” on page 70) or you can select to dub multiple titles all at once (see “Dubbing Using Dubbing List” on page 71). You can also dub an entire DVD disc to make a backup copy (see “Making a Backup Disc (DVD Backup)” on page 74).
Before you start, read the following precautions, which are common to all dubbing methods.

If you want to record from a digital video camera connected to the DV IN jack, see “DV Camcorder Dubbing” on page 75.
To record from equipment connected to the LINE IN jacks, see “Recording from Connected Equipment” on page 50.

Before you start…

- You cannot record both the main and sub sound on the HDD (when “HDD Recording Format” is set to “Video Mode On” in the “Recording” setup), DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs (Video mode). For SAP or Dual Mono programs, set “Dual Mono Recording” to either “L” (default) or “R” in the “Audio In” setup (page 104). To record both the main and sub sound on the HDD, select “Video Mode Off” in “HDD Recording Format” (except in PCM recording mode) (see page 109). To record on DVDs, use DVD-RWs/DVD-Rs formatted in VR mode (except in PCM recording mode). If the recording mode is in PCM mode, only one of the audio signals can be recorded.
- A title name in the dubbing source is dubbed. However, only up to 40 characters of a title name are dubbed when dubbing from the HDD to a DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode).
- The chapter marks in the dubbing source are dubbed. The position of chapter marks may be slightly changed from the original. However, the chapter marks in the dubbing source are not retained in the dubbed title when dubbing to a DVD-RW/DVD-R (Video mode), DVD+RW, or DVD+R at normal speed. The chapter marks are automatically inserted according to the “Auto Chapter (Video)” and “Auto Chapter (DVD+R/+RW)” settings in the “Recording” setup (page 109).
- The “Set Thumbnail” setting in the dubbing source is dubbed as a thumbnail picture marker (except when dubbing from a DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode)). The position of thumbnail picture markers may be slightly changed from the original.

Hint

When you dub a Playlist title, it is recorded as an Original title.

Notes

- You cannot make a recording while dubbing.
- Before playing a dubbed disc on other DVD equipment, finalize the disc (page 39, 71).
- You cannot dub from DVD VIDEOs or finalized DVD-RWs/DVD-Rs (Video mode) to the HDD.
- Titles containing mixed aspect ratios cannot be dubbed to a DVD+RW/DVD+R/DVD-RW/DVD-R (Video mode) using the HDD/DVD DUB button.
- Titles over 8 hours cannot be dubbed to single-layer DVD+RWs/DVD+Rs.
- Low resolution (SEP through LP modes) 16:9 size titles cannot be dubbed to a DVD+RW/DVD+R/DVD-RW/DVD-R (Video mode).
- When dubbing to a DVD+R DL, DVD-R DL (Video mode) in Real-Time Dubbing mode, the dubbing contents are divided into titles.

Dubbing restriction

You cannot dub movies and other DVD VIDEOs to the HDD. Also, when dubbing from a DVD to the HDD, scenes that contain a copy protection signal cannot be recorded. Titles containing “Copy-Once” copy protection signals can be moved only from the HDD to a DVD-RW/DVD-R (VR mode)* (after the title is moved, the original title in the HDD is erased). The “Move” function is performed using Dubbing List. Titles containing “Copy-Once” copy protection signals are indicated with COPY.

Copy protection signals	Dubbing
Copy-Free (No copy protection signal)	HDD ⇄ +RW, -RWVR, -RWVideo, +R, -RVR, -RVideo
Copy-Once	HDD → -RWVR *, -RVR *

* CPRM-compatible DVD-RWs/DVD-Rs (VR mode) only.
CPRM (Content Protection for Recordable Media) is a coding technology that protects copyrights for images.

Notes

- Protected titles in the HDD cannot be moved.
- The “Move” function is not available for HDD/DVD DUB dubbing.
- Even if you erase a scene that contains a copy protection signal, the recording restrictions on that title are retained.

HDD/DVD Dubbing

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can dub a single title by pressing the HDD/DVD DUB button during playback.

1 Start playback of a title.
For playing a title, see “Playing the Recorded Program/DVD” on page 52.

2 Press HDD/DVD DUB.
The recorder starts dubbing the current playing title from the beginning.
The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To cancel the dubbing

Press and hold HDD/DVD DUB for more than one second.
When dubbing (Move) is stopped partway, no part of the title will be moved to the dubbing target. However, note that this will decrease the free space for DVD+Rs/DVD-Rs.

About dubbing mode

Titles on the HDD are dubbed to a disc at high speed (High-speed dubbing).
Titles on a disc are dubbed to the HDD at normal speed (Real-Time dubbing).

To convert the recording mode (only when dubbing from a disc to the HDD)

After step 1, press REC MODE to select the recording mode.

Note

You cannot use the HDD/DVD DUB button in the following cases. Dub the title using Dubbing List (page 71).

– When dubbing the title recorded in MN6 mode or longer duration mode to a DVD+RW/DVD+R.
– When dubbing the title recorded in HQ+ mode to a DVD.

Dubbing Using Dubbing List

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

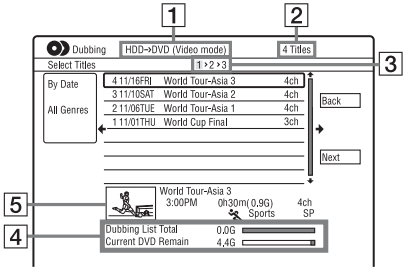
You can select the titles you want to dub using Dubbing List. You can also edit titles before dubbing without changing the original titles.

1 Press SYSTEM MENU.
The System Menu appears.

2 Select "Dubbing," and press ENTER.

3 Select a dubbing direction, and press ENTER.
To dub titles from the HDD to a disc, select "HDD -> DVD."
To dub titles from a disc to the HDD, select "DVD/CD -> HDD."

4 Select "Create New Dubbing List," and press ENTER.
The Dubbing List appears.
- If you have previously saved a Dubbing List and want to resume editing it, select "Use Previous Dubbing List," and go to step 7.



1 Direction of dubbing

2 Total number of titles to be dubbed

3 Dubbing step number
Display 1: Select a title you want to dub (the "Select Titles" display).
Display 2: Edit a title (the "Title Edit" display).
Display 3: Confirm the settings and start dubbing (the "Start Dubbing" display).

4 Total size of the selected titles and available space on the disc to be dubbed (approximate)

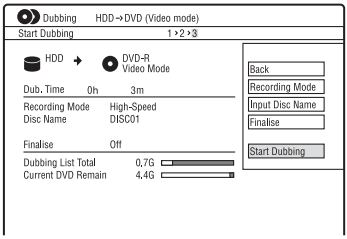
5 Selected title's thumbnail picture

5 Select a title, and press ENTER.
The selected title changes color.
When you select "HDD -> DVD" in step 3, you can change the title order or search for a title by genre (see "3. Playing the Recorded Program (Title List)" on page 32).

6 Repeat step 5 to select all of the titles in the order you want to dub.

7 Select "Next" using ➡, and press ENTER.
The "Title Edit" display appears.
For details about editing, see "To edit titles on the Dubbing List" on page 73.

8 Select "Next" using ➡, and press ENTER.
The "Start Dubbing" display appears.



9 Select an option using ↑/↓, and press ENTER.
The options differ depending on the dubbing direction or disc type.
"Recording Mode": Changes the dubbing mode of all selected titles at a time using ↑/↓ (page 43).
"Input Disc Name": Changes the disc name (page 36).
"Finalise": Select "Yes" to finalize a disc automatically after dubbing (DVD-RW/DVD-R (Video mode), or DVD+R).

➡continued

10 Select "Start Dubbing," and press ENTER.

When you set "Finalise" to "Yes" in step 9, select the title menu style, and press ENTER.

The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To cancel dubbing

Press and hold HDD/DVD DUB for more than one second.

When dubbing (Move) is stopped partway, no part of the title will be moved to the dubbing target. However, note that this will decrease the free space for DVD+Rs/DVD-Rs.

About dubbing mode

"◉" appears next to the title that can be dubbed at high speed (High-speed dubbing) in the "Title Edit" display. The following titles are dubbed at normal speed (Real-Time dubbing).

– Titles containing both main and sub sounds (except DVD-RWs/DVD-Rs (VR mode)).
– Titles recorded in mixed picture size (4:3 and 16:9, etc.) (except for DVD-RWs/DVD-Rs (VR mode)).
– Titles recorded on DVD+RWs/DVD-RWs (Video mode)/DVD+R/DVD-R (Video mode).
– 16:9 size titles recorded on DVD+RW/DVD+R.

The minimum required time is as follows (approximate).

Required times for High-speed Dubbing from HDD to DVD (for 60-minute program)[*1]

Speed[*2]	6x	2.4x	2x
Rec. mode	High-speed DVD+RW/DVD-RW/DVD+R/DVD-R	DVD+R (Double Layer)	DVD-R (Dual Layer)
HQ	Approx. 10 min.	Approx. 25 min.	Approx. 30 min.
HSP	Approx. 6 min. 40 sec.	Approx. 16 min. 40 sec.	Approx. 20 min.
SP	Approx. 5 min.	Approx. 12 min. 30 sec.	Approx. 15 min.
LSP	Approx. 4 min.	Approx. 10 min.	Approx. 12 min.
ESP	Approx. 3 min. 20 sec.	Approx. 8 min. 20 sec.	Approx. 10 min.
LP	Approx. 2 min. 30 sec.	Approx. 6 min. 15 sec.	Approx. 7 min. 30 sec.
EP	Approx. 1 min. 40 sec.[*3]	Approx. 60 min.[*3]	Approx. 5 min.
SLP	Approx. 1 min. 15 sec.[*3]	Approx. 60 min.[*3]	Approx. 3 min. 45 sec.
SEP	Approx. 1 min.[*3]	Approx. 60 min.[*3]	Approx. 3 min.[*3]

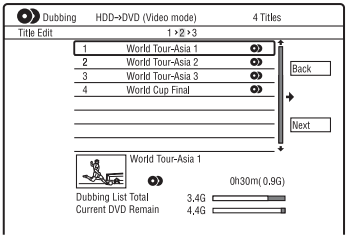
[*1] The values in the above table are for reference only. Actual times for dubbing also require time for creating disc's control information and other data.

[*2] This is the maximum recording speed of this recorder. The recording speed cannot exceed the value indicated in the above table even when using discs that support higher recording speeds. In addition, depending on the disc condition, the recorder may be unable to record at the maximum recording speed indicated in the table.

[*3] High-speed dubbing is not available when dubbing titles recorded in SEP, SLP, or EP mode to DVD+RWs and DVD+Rs.

To edit titles on the Dubbing List

1 Follow steps 1 to 7 of "Dubbing Using Dubbing List" on page 71.
The "Title Edit" display appears.



2 Select a title you want to edit, and press ENTER.
The sub-menu appears.

3 Select an option, and press ENTER.
The options differ depending on the dubbing direction or disc type.
"Erase": Erases the selected title.
"Title Name": Names or renames a title (page 36).
"A-B Erase": Erases the section of the title (page 64).
"Move": Changes the order of titles (page 68).
"Preview": Allows you to check the content of a title.
"Divide": Divides a title into two titles (page 65).
"Combine": Combines two titles (page 68).
"Chapter Edit": Edits chapters (page 66).
"Set Thumbnail": Changes the title's thumbnail frame that appears in the Title List (page 34).
"Recording Mode": Sets the picture quality of the dubbing.
"Dual Mono Audio": Changes the audio sound of a SAP or Dual Mono program (page 69).
"Cancel": Exits the sub-menu.

4 Repeat steps 2 and 3 to edit all of the titles.

5 Go to step 8 of "Dubbing Using Dubbing List" on page 71 to dub edited titles.

Notes

- The Dubbing List you created remains after dubbing. To edit the existing Dubbing List, select "Use Previous Dubbing List" in step 4. The Dubbing List is cleared when:
  – you reset the recorder (page 122).
  – you open the disc tray (except when dubbing from the HDD).
  – you edit the titles on a disc (except when dubbing from the HDD).
  – you switch the Title List to Original or Playlist (when dubbing from DVD-RWs/DVD-Rs in VR mode only).
  – you finalize the disc.
- The "seams" that are left over from editing may remain on the disc after dubbing to DVD+RWs/DVD-RWs (Video mode)/DVD+Rs/DVD-Rs (Video mode).
- Finalisation is canceled if a timer recording starts, even if you set "Finalise" to "Yes" in step 9.

Making a Backup Disc (DVD Backup)

+RW -RW Video +R -R Video

You can dub all of the contents on a finalized DVD+RW/DVD+R or finalized DVD-RW/DVD-R (Video mode) to another recordable DVD+RW/DVD-RW or unused DVD+R/DVD-R via the HDD as a backup copy.

Note

Backup discs of unfinalized discs cannot be made.

1 Press SYSTEM MENU.

The System Menu appears.

2 Select "Dubbing," and press ENTER.

3 Select "DVD Backup," and press ENTER.

4 Select "Start new DVD Backup," and press ENTER.

- If you have previously dubbed backup data to the HDD, select "Resume writing data," and go to step 7.

5 Insert the DVD you are going to make a backup of.

6 Select "Start," and press ENTER.

The recorder starts dubbing all of the contents on a DVD to the HDD.

7 Press ⏏ OPEN/CLOSE, and replace the DVD with a recordable DVD+RW/DVD-RW or an unused DVD+R/DVD-R.

To make a backup disc of DVD+RWs/DVD+Rs, insert a recordable DVD+RW or unused DVD+R.

To make a backup disc of DVD-RWs/DVD-Rs, insert a recordable DVD-RW or unused DVD-R.

8 Select "Start," and press ENTER.

The recorder starts High-speed dubbing the contents that were dubbed to the HDD in step 6.

9 Select "Cancel," and press ENTER.

The disc is automatically finalized.

- To make another backup disc, replace discs, select "Start," and press ENTER.

10 Select "Yes" or "No," and press ENTER.

To erase the backup data on the HDD, select "Yes."

To make another backup disc later, select "No."

The recorder turns off automatically when you do not use the recorder for more than 20 minutes after the dubbing has finished.

To display the dubbing information

Press DISPLAY while dubbing.

To cancel DVD backup during dubbing

Press and hold HDD/DVD DUB for more than one second.

To erase backup data on the HDD

1 Select "Erase back-up data" in step 4, and press ENTER.
The display asks for confirmation.

2 Select "Yes," and press ENTER.

Notes

- When dubbing to a DVD+R/DVD-R is stopped partway in step 8, you cannot play or record on the disc.
- You cannot make a backup disc of DVD+R DLs/DVD-R DLs.
- You may not use the "DVD Backup" function depending on the recording quality or physical condition of the disc, or characteristics of the recording device and authoring software.

Before DV Camcorder Dubbing

This section explains dubbing with a DV camcorder and playing the contents of a DV camcorder via the DV IN jack on the front panel. If you want to dub by way of the LINE IN jacks, see "Recording from Connected Equipment" on page 50.
The DV IN jack on this recorder conforms to the i.LINK standard.
Follow the instructions in "Preparing for DV camcorder dubbing," and then move on to the section on dubbing. For more information about i.LINK, see "About i.LINK" on page 126.

How chapters are created

The contents dubbed to the HDD or DVD become a single title. This title is divided into chapters. When dubbing to the HDD or a DVD-RW/DVD-R (VR mode) and when "Auto Chapter (HDD/VR)" is set to "On" in the "Recording" setup (page 108), each shooting session on the tape becomes a chapter on the disc. For other discs, the recorder divides the title into chapters according to the "Auto Chapter (Video)" or "Auto Chapter (DVD+R/+RW)" setting in the "Recording" setup (page 109).

Preparing for DV camcorder dubbing

You can connect a digital video camera to the DV IN jack on the recorder to record or edit from a DV/Digital8 format tape. Operation is straightforward because the recorder will fast forward and rewind the tape for you – you do not need to operate your digital video camera. Do the following to start using the "Manual Dubbing" functions of this recorder.
See the instruction manual supplied with the digital video camera as well before connecting.

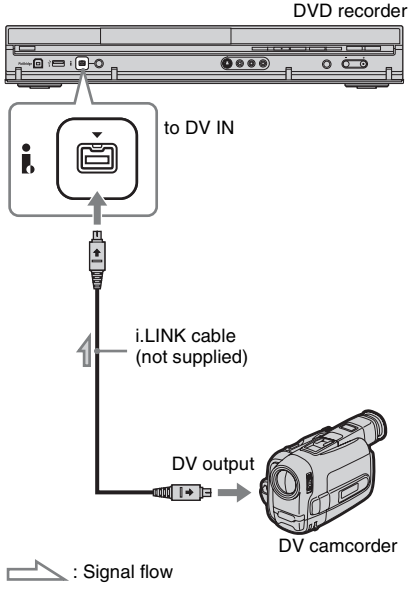
Hint

If you plan to do additional editing on a disc after the initial dub, use the DV IN jack and record on a DVD-RW/DVD-R (VR mode) or HDD.

Notes

- You cannot make a recording while DV camcorder dubbing.
- The DV IN jack is for input only. It will not output signals.
- You cannot use the DV IN jack when:
  – signal input to the DV IN jack on the front panel or recorder operation cannot be performed correctly when using a digital video camera (see "About i.LINK" on page 126). Connect the camera to the LINE IN jack and follow the instructions of "Recording from Connected Equipment" on page 50.
  – the input signal is not in DVC-SD format. Do not connect a MICRO MV format digital video camera even if it has an i.LINK jack.
  – the images on the tape contain copy protection signals, which limit recording.
- If you want to play DVDs dubbed from a DV camcorder on other DVD equipment, finalize the disc (page 39).
- Be sure to set the DV camcorder to the NTSC color system.

Hookups



1 Press HDD or DVD to select the recording destination.

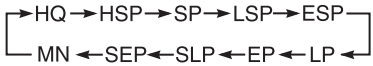
If you select DVD, insert a disc (see "1. Inserting a Disc" on page 30).

2 Insert the source DV/Digital8 format tape into your digital video camera.

For the recorder to record or edit, your digital video camera must be set to video playback mode.

3 Press REC MODE on the remote repeatedly to select the recording mode.

The recording mode changes as follows:



For details about the recording mode, see page 43. Note that you cannot select manual recording mode.

4 Set the "External Audio" setting in the "Audio In" setup (page 103).

5 Set the "DV Input" setting in the "Audio In" setup (page 104).

You are ready to start dubbing. Select one of the dubbing methods on the following pages.

To playback DV/Digital8 format tape

You can check the contents of DV/Digital8 format tape before dubbing. For details, see "Playing from a DV Camcorder" on page 78.

Notes

- You cannot connect more than one piece of digital video equipment to the recorder.
- You cannot control the recorder using another device or another recorder of the same model.
- You cannot record date, time, or the contents of the cassette memory onto the disc.
- If you record from a DV/Digital8 format tape that is recorded in multiple sound tracks, such as a tape with multiple sampling frequencies (48 kHz, 44.1 kHz, or 32 kHz), no sound or an unnatural sound will be output when playing back the sampling frequency switch point on the disc.
- In order to use this recorder's "Auto Chapter" setting (page 75), be sure to correctly set the clock on your digital video camera before shooting.
- The recorded picture may be momentarily affected or the start and end points of a title may be different from what you have set if the source DV/Digital8 format tape is in any of the following conditions. In this case, see "Recording from Connected Equipment" (page 50).
  - There is a blank space in the recorded portion of the tape.
  - The tape's time code is not sequential.
  - If the picture size or the recording mode on the tape being dubbed changes.
- You cannot use a color system other than NTSC, such as PAL.

Dubbing an Entire DV Format Tape (DV One Touch Dubbing)

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can record the entire contents of a DV/Digital8 format tape onto a disc with a single press of the ONE-TOUCH DUB button on the recorder. The recorder controls the digital video camera for the whole process, and completes the recording.

Follow steps 1 to 5 of "Preparing for DV camcorder dubbing" on page 75, and press ONE-TOUCH DUB on the recorder.

The recorder rewinds the tape and then starts recording the tape contents.
After the recording is finished, the recorder rewinds the tape in the digital video camera, and finalizes the recorded disc (except DVD-RW/DVD-R (VR mode)) automatically.

To stop during recording

Press ■ REC STOP more than 3 seconds. Note that it may take a few seconds for the recorder to stop recording.

Hint

You can also start DV One Touch Dubbing by selecting "One-Touch Dubbing" of "DV" in the System Menu.

Notes

- When a blank space between the recordings on the tape continues for more than two minutes, DV One Touch Dubbing ends automatically.
- The recorder will pause recording when there is a blank space or an image containing copy protection signals on the tape. The recorder will resume recording automatically when receiving a recordable signal.
- Finalisation is canceled if a timer recording starts (except for DVD-RW/DVD-R (VR mode)).
- DV One Touch Dubbing ends automatically when there are images containing copy protection signals at the beginning of the tape.

Dubbing Selected Scenes (Manual Dubbing)

HDD +RW -RWVR -RWVideo +R -RVR -RVideo

You can select and dub scenes while playing a DV/Digital8 format tape.

1 **Follow steps 1 to 5 of "Preparing for DV camcorder dubbing" on page 75.**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select "DV," and press ENTER.**

4 **Select "Manual Dubbing," and press ENTER.**

5 **Select the recording destination, "Record to Hard Disk Drive" or "Record to DVD," and press ENTER.**

6 **Press ▷ PLAY.**
The scene starts to play.

7 **Find the point on the DV/Digital8 format tape that you want to start dubbing from using ◀◀/▶▶ or ◀II/II▶, and press II PAUSE.**

8 **Select "Start Rec.," and press ENTER.**
The recorder starts dubbing.

9 **Select "Pause Rec," and press ENTER.**
The recorder pauses dubbing.

10 **Repeat steps 6 to 9 to dub more scenes.**

11 **Select "Stop Rec," and press ENTER.**
The selected scenes are dubbed as a single title.

To cancel during "Manual Dubbing"

Press SYSTEM MENU.

➡continued

Hint

You can turn off the dubbing menu by pressing the DISPLAY button in steps 7 and 8. Press the DISPLAY button again to display the dubbing menu.

Note

You cannot set a scene to be shorter than one second.

Playing from a DV Camcorder

1 Connect your DV camcorder to the DV IN jack on the front panel.

2 Press SYSTEM MENU.

The System Menu appears.

3 Select "DV," and press ENTER.

4 Select "Playback," and press ENTER.

5 Start playback on the DV camcorder.

Images from the DV camcorder appear on your TV screen.

To cancel playback

Press SYSTEM MENU.

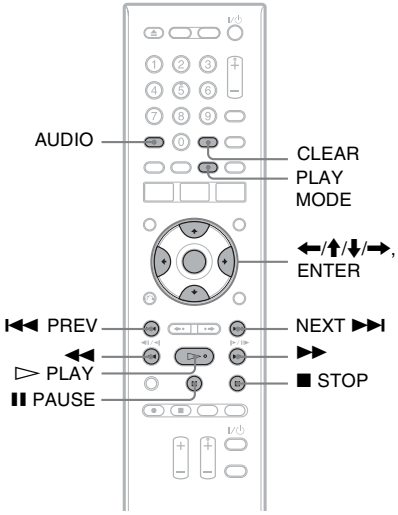
Hint

You can dub the playing tape contents. During playback, press HDD or DVD to select the dubbing destination, and press ● REC. To stop dubbing, press ■ REC STOP.

Playing Audio Tracks from CD/DVD

CD DATA DVD DATA CD

You can play audio tracks on CDs, DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs/DVD-RAMs), or DATA CDs (CD-ROMs/CD-Rs/CD-RWs).



1 Insert a disc.

See "1. Inserting a Disc" on page 30.

2 Press ▷ PLAY.

Playback starts.

To stop playback

Press ■ STOP.

Hint

You can play audio tracks using the Title List. Press TITLE LIST. Then select a track, and press ENTER.

Note

When any video titles are recorded on a DATA DVD, the MP3 audio tracks on that DATA DVD cannot be played.

To lock the recorder (Child Lock)

You can lock all of the buttons on the recorder so that the settings are not canceled by mistake.

When the recorder is turned off, hold down ■ (stop) on the recorder until "LOCKED" appears in the front panel display. The recorder does not work except for timer recordings while the Child Lock is set.

To unlock the recorder, hold down ■ (stop) on the recorder until "UNLOCKED" appears in the front panel display.

Playback options

CD DATA DVD DATA CD

Buttons	Operations
AUDIO	Selects stereo or monaural audio tracks recorded on the disc when pressed repeatedly in normal playback mode.
I◀◀ PREV/ NEXT ▶▶I	Goes to the next or previous track when pressed during playback. For MP3 discs, goes to the next or previous album when pressed repeatedly.
◀◀/▶▶ (fast reverse/ fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse fast forward ◀◀FR1 ← → ▶▶FF1 ◀◀FR2 ← ← → → ▶▶FF2 When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. To resume normal playback, press ▷ PLAY.
II PAUSE	Pauses playback. To resume normal playback, press ▷ PLAY.

→continued

Notes on playing DTS sound tracks on a CD

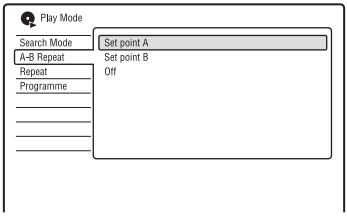
- When playing DTS-encoded CDs, excessive noise will be heard from the LINE OUT (R-AUDIO-L) jacks. To avoid possible damage to the audio system, the user should take proper precautions when the LINE OUT (R-AUDIO-L) jacks of the recorder are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external DTS decoder must be connected to the DIGITAL OUT jack of the recorder.
- Set the sound to "Stereo" using the AUDIO button when you play DTS sound tracks on a CD (page 79).

Playing a specific portion repeatedly (A-B Repeat)

CD

1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "A-B Repeat," and press ENTER.
"Set point A" is selected.



3 While monitoring the sound, press ENTER at the starting point (point A) of the portion to be played repeatedly.
"Set point B" is selected.

4 Continue playing to locate the ending point (point B), and press ENTER.
A-B Repeat starts.

To cancel A-B Repeat

Press CLEAR. Or, set "A-B Repeat" to "Off" in the "Play Mode" menu.

Hint
You can select "A-B Repeat" from "Play Mode" in the System Menu.

Note
"A-B Repeat" is not available for MP3 audio tracks.

Playing repeatedly (Repeat)

CD DATA DVD DATA CD

You can play repeatedly all the tracks or a single track on an album or disc.

1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "Repeat," and press ENTER.

3 Select an item to be repeated using ↑/↓.
"Repeat Disc": repeats all of the tracks on a disc.
"Repeat Album" (except for CD): repeats the current album.
"Repeat Track": repeats the current track.
"Repeat Programme": repeats the current program (page 81).

4 Press ENTER.
Repeat play starts.

To cancel Repeat play

Press CLEAR. Or, set "Repeat" to "Repeat Off" in the "Play Mode" menu.

Hint
You can select "Repeat" from "Play Mode" in the System Menu.

Note
You can select "Repeat Programme" only during Programme play.

Creating your own program (Programme)

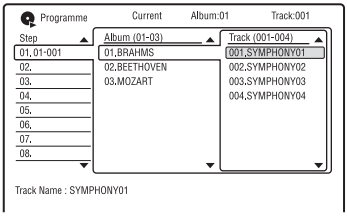
CD DATA DVD DATA CD

You can play the contents of an album or disc in the order you want by arranging the order of the albums/tracks on a disc to create your own program. You can make a program of up to 24 steps.

1 Press PLAY MODE during playback.
The "Play Mode" menu appears.

2 Select "Programme," and press ENTER.

3 Select "Input/Edit Programme," and press ENTER.
The "Input/Edit Programme" display differs depending upon the disc type.
Example: DATA DVD



4 Select an album (example: 01.BRAHMS) using ↑/↓, and press →.

5 Select a track (example: 001.SYMPHONY01) using ↑/↓, and press ENTER.
The track is programed.
If you make a mistake, select the step number (example: 01-001) using ←/↑/↓, and press CLEAR.

6 To program other tracks, press ←/↑/↓/→ to select a step number, and repeat steps 4 and 5.

7 Press ▷ PLAY.
Programme play starts.

To cancel Programme play
Press CLEAR during playback. Or, set "Programme" to "Cancel Programme Play" in the "Play Mode" menu.

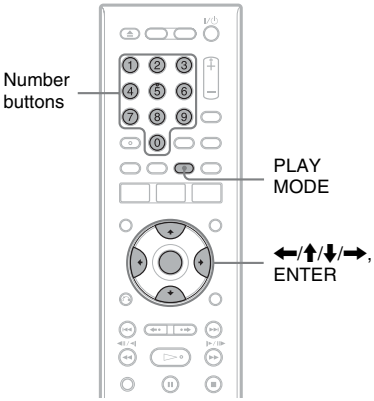
To erase the program
Press CLEAR in stop mode. Or, set "Programme" to "Erase Programme List" in the "Play Mode" menu.

Hints
- The program you made remains after Programme play finishes. To play the same program again, set "Programme" to "Start Programme Play" in the "Play Mode" menu. However, the program is cleared after you remove the disc or press I/⏻.
- You can repeat Programme play. Set "Repeat" to "Repeat Programme" in the "Play Mode" menu (page 80).
- You can select "Programme" from "Play Mode" in the System Menu.

Searching for an Audio Track

CD DATA DVD DATA CD

You can search a disc by album or track. As albums and tracks are assigned individual numbers, select the album or track by entering its number.



1 Press PLAY MODE during playback.

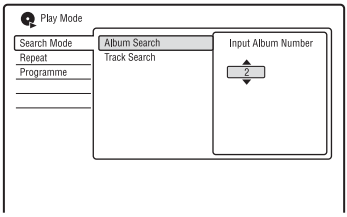
The "Play Mode" menu appears.

2 Select "Search Mode," and press ENTER.

3 Select a search method, and press ENTER.

"Album Search" (except for CD)
"Track Search"

The display for entering the number appears.
Example: Album Search



4 Press the number buttons to select the number of the album or track you want.

If you make a mistake, select another number.

5 Press ENTER.

The recorder starts playback from the selected number.

Hint

You can select an album or track using ↑/↓ in step 4.

About Jukebox

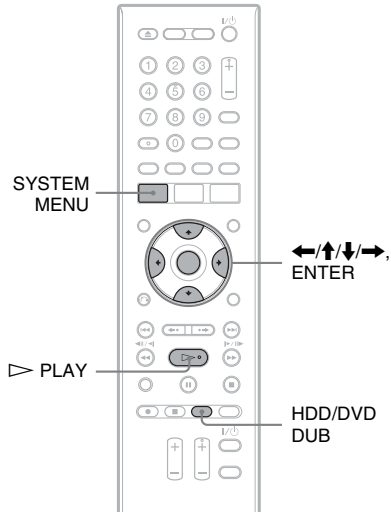
There are two methods to use Jukebox: connecting the USB device or copying audio tracks to the HDD.
When using Jukebox, you can do followings:
- Store audio tracks on the HDD.
- Play audio tracks using various play modes.
- Label tracks or albums.
- Assign albums a genre.
- Change the track order.

Notes on copying

- You cannot copy audio tracks on the HDD to discs or USB devices.
- Some audio tracks may not be copied depending on the file size.
- You cannot copy audio tracks if the HDD is full or almost full.
- An album name and MP3 audio track name are also copied. However, there may be some names that cannot be copied.
- When copying is stopped partway, tracks finished copying before you stop will remain copied onto the HDD as an album. See the Album List to check which albums have been copied (page 85).
- When copying from a CD, the album name is labeled as "F_***" and the audio track names are labeled as "T_***" automatically.
- During copying, other operations cannot be performed.
- While copying audio tracks, timer recordings are unavailable. If the timer is set during copying, the recorder starts the timer recording after copying is finished.
- Copy-protected CDs cannot be copied to the HDD.

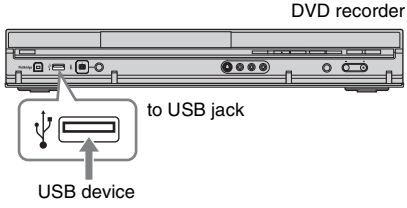
Preparing for Using Jukebox

Connect a USB device to the USB jack on the recorder, or copy audio tracks from CDs/ DATA CDs/DATA DVDs or the connected USB device to the HDD.



Connecting the USB device

You can connect a USB device to the USB jack on the recorder to listen to the MP3 audio tracks or copy to the HDD. Refer to the operating instructions supplied with the USB device before connecting.



Copying audio tracks (DISC → HDD)

1 Insert a disc that you are going to copy to the HDD.

2 Press ▷ PLAY to start playback.

3 Press HDD/DVD DUB.
For CDs, all the tracks on the disc are copied to the HDD.
For DATA CDs/ DATA DVDs, the current album is copied to the HDD.

To cancel copying
Press ENTER.

Hint
You can copy all the contents on the disc by selecting "DVD/CD -> HDD" in "Dubbing" in the System Menu.

Copying an album (USB → HDD)

You can copy up to 99 albums or 999 audio tracks on the USB device to the HDD.

1 Connect the USB device to the USB jack on the recorder (page 83).

2 Press SYSTEM MENU.
The System Menu appears.

3 Select "Music Jukebox," and press ENTER.

4 Select "Listen to Music from USB Device," and press ENTER.
The Album List appears.

5 Select an album, and press →.

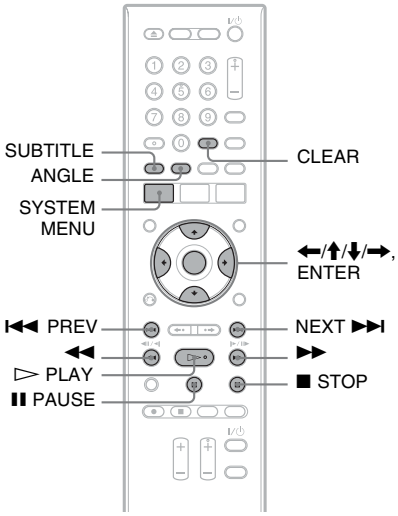
6 Select "Edit" using ↑/↓, and press ENTER.
The sub-menu appears.

7 Select "Copy Album," and press ENTER.
The display asks for confirmation.

8 Select "Yes" using ←/→, and press ENTER.
The selected album is copied to the HDD.
• To copy more albums, go to step 5.

To cancel copying
Press ENTER.

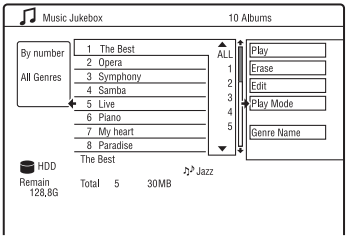
Playing Audio Tracks Using Jukebox/USB Device



1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Select "Music Jukebox," and press ENTER.**

3 **Select "Listen to Music / Edit" or "Listen to Music from USB Device," and press ENTER.**
To listen to the audio tracks on the HDD, select "Listen to Music / Edit."
To listen to the MP3 audio tracks from the connected USB device, select "Listen to Music from USB Device."
The Album List appears.



4 **Select an album or track, and press ENTER.**
Playback starts from the selected album or track.

To stop playback
Press ■ STOP.

To scroll the list display by page (Page mode)
Press SUBTITLE (previous)/ANGLE (next) while the Album List is displayed. Each time you press SUBTITLE (previous)/ANGLE (next), the entire Album List changes to the next/previous page of the album.

To change the album order (Sort Titles) (HDD only)

1 Press ← while the Album List is displayed.

2 Select "Sort Titles" using ↑/↓, and press ENTER.

3 Select the item using ↑/↓, and press ENTER.

Order	Sorted
By number	In order of album number.
By favourite	In order of playback times. The album that is most often played is listed at the top.
By album	In alphabetical order.

To search for the album by genre (Genre) (HDD only)

1 Press ← while the Album List is displayed.

2 Select "Genre" using ↑/↓, and press ENTER.

3 Select the genre using ↑/↓, and press ENTER.
The albums in the selected genre appear. To display all albums, select "All Genres."

→continued

To skip a track (Set Skip)

If you want a track not to play, set the track to be skipped.

1 Select a track you want to skip.

2 Press ➡ while the Album List is displayed.

3 Select "Edit" using ↑/↓, and press ENTER.

4 Select "Set Skip" using ↑/↓, and press ENTER.
"»" appears next to the selected track. To cancel, select "Set Skip," and press ENTER again.

Playback options

Buttons	Operations
⏮ PREV/ NEXT ⏭	Goes to the next or previous track when pressed during playback.
◀◀/▶▶ (fast reverse/ fast forward)	Fast reverses/fast forwards the disc when pressed during playback. Search speed changes as follows: fast reverse fast forward ◀◀FR1← →▶▶FF1 ◀◀FR2←← →→▶▶FF2 When you press and hold the button, fast forward/fast reverse continues at the selected speed until you release the button. To resume normal playback, press ▷ PLAY.
⏸ PAUSE	Pauses playback. To resume normal playback, press ▷ PLAY.

Playing repeatedly (Repeat)

You can play repeatedly all the tracks or a single track in the album.

1 Press ➡ during playback.

2 Select "Play Mode," using ↑/↓, and press ENTER.
The "Play Mode" menu appears.

3 Select "Repeat," and press ENTER.

4 Select an item to be repeated using ↑/↓.
"Repeat Album": repeats the current album.
"Repeat Track": repeats the current track.
"Repeat Programme": repeats the current program (page 87).

5 Press ENTER.
Repeat play starts.

To cancel Repeat play

Set "Repeat" to "Repeat Off" in the "Play Mode" menu.

Notes

- You can select "Repeat Programme" only during Programme play.
- "A-B Repeat" is not available when using "Music Jukebox."

Creating your own program (Programme)

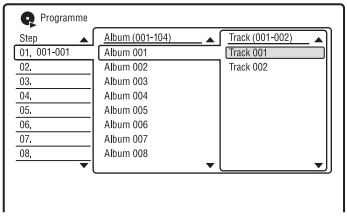
You can play the contents of the HDD or connected USB device in the order you want by arranging the order of the tracks on the HDD or connected USB device to create your own program. You can make a program of up to 24 steps.

1 Press ➡ while the Album List is displayed.

2 Select "Play Mode," using ↑/↓, and press ENTER.
The "Play Mode" menu appears.

3 Select "Programme," and press ENTER.

4 Select "Input/Edit Programme," and press ENTER.



5 Select an album (example: Album 001) using ↑/↓, and press ➡.

6 Select a track (example: Track 001) using ↑/↓, and press ENTER.
The track is programed.
If you make a mistake, select the step number (example: 01.) using ←/↑/↓, and press CLEAR.

7 To program other tracks, press ←/↑/↓/➡ to select a step number, and repeat steps 5 and 6.

8 Press ▷ PLAY.
Programme play starts.

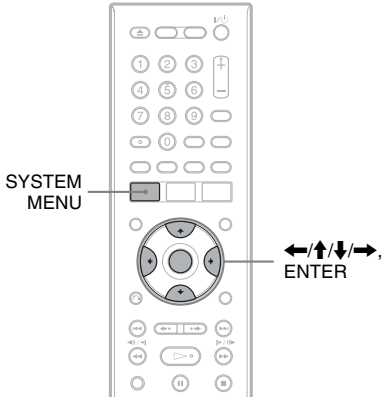
To cancel Programme play
Set "Programme" to "Cancel Programme Play" in the "Play Mode" menu during playback.

To erase the program
Set "Programme" to "Erase Programme List" in the "Play Mode" menu.

Hints
- You can select and play a track that is set to "Set Skip."
- The program you made remains after Programme play finishes. To play the same program again, set "Programme" to "Start Programme Play" in the "Play Mode" menu. However, the program is cleared after you press I/⏻.
- You can repeat Programme play. Set "Repeat" to "Repeat Programme" in the "Play Mode" menu (page 86).

Managing Audio Tracks on the Music Jukebox

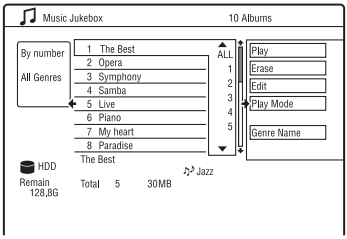
You can erase or label albums/tracks on the HDD. You can also assign an album a genre.



1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Select "Music Jukebox," and press ENTER.**

3 **Select "Listen to Music / Edit," and press ENTER.**
The Album List appears.



4 **Select an album or track, and press →.**

5 **Select an option, and press ENTER.**
"Erase": Erases the selected album/track. Select "Yes" when asked for confirmation.
"Edit": Allows you to make the following edits.
- "Album Name": Allows you to enter or re-enter an album name (page 36).
- "Track Name": Allows you to enter or re-enter a track name (page 36).
- "Set Genre": Assigns an album a genre.
- "Set Skip": Sets a track to be skipped (page 86).

"Play Mode": Selects play modes (page 86).
"Genre Name": Allows you to enter a genre name (up to 12 characters) (page 36).

Note
You cannot edit audio tracks on the connected USB device.

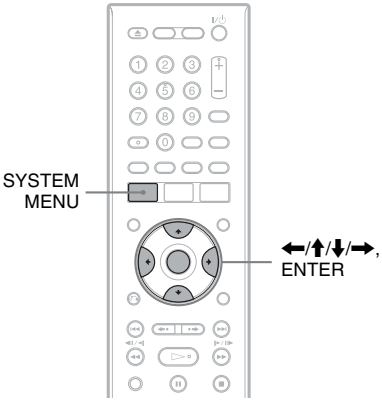
About the “Photo Album” Function

The “Photo Album” function enables you to do following.

- Store JPEG image files on the HDD.
- View JPEG image files on the HDD, DATA DVDs (DVD-RWs/DVD-Rs)/DATA CDs, or connected USB device.
- Edit JPEG image files.
- Print JPEG image files.
- Copy JPEG image files and slideshow to DVD-RWs/DVD-Rs.

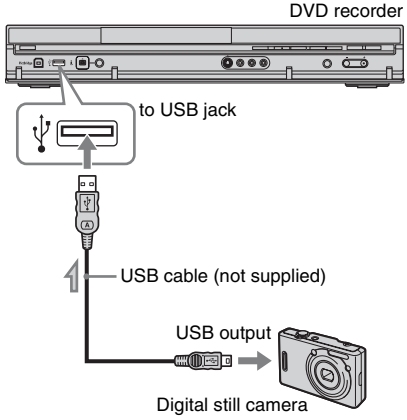
Preparing for Using the “Photo Album” Function

Connect a USB device to the USB jack on the recorder, or copy JPEG image files from DATA CDs/DATA DVDs or the connected USB device to the HDD.



Connecting the USB device

You can connect a USB device (digital still camera, Memory card reader, and USB memory) to the USB jack on the recorder to view JPEG image files or copy to the HDD. Refer to the operating instructions supplied with the USB device before connecting.



Copying JPEG image files to the HDD (DISC/USB → HDD)

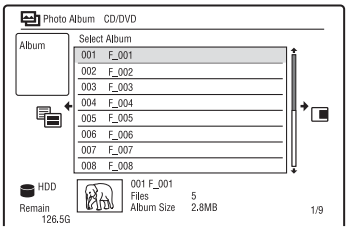
1 **Insert a disc that you are going to copy to the HDD or connect the USB device to the USB jack on the recorder.**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select “Photo Album,” and press ENTER.**
The “Photo Album” menu appears.

4 Select the item, and press ENTER.

To copy from DATA CDs/DATA DVDs (DVD-RWs/DVD-Rs), select "View Photos on a CD/DVD."
To copy from the connected USB device, select "View Photos on a USB Device."
The "Photo Album" list appears.
Example: CD/DVD



5 Select an album or JPEG image file using ↑/↓, and press →.

The sub-menu appears.

6 Select an item, and press ENTER.

To copy two or more albums or JPEG image files, select "Multi-Mode."
To copy all the albums and JPEG image files, select "Copy all to HDD," and go to step 11.
To copy the album or file selected in step 5 only, select "Copy to HDD," and go to step 11.

7 Select an album or JPEG image file, and press ENTER.

A check mark appears in the check box by the selected item.

- To clear the check mark, press ENTER again.
- To clear all check marks, press → to select "Single-Mode" from the sub-menu.

8 Repeat step 7 to select all of the albums or JPEG image files you want to copy.

9 Press →.

The sub-menu appears.

10 Select "Copy to HDD," and press ENTER.

The display asks for confirmation.

11 Select "Yes," and press ENTER.

- To cancel, select "No."

Copying all JPEG image files from the connected USB device (USB → DVD-RW/DVD-R)

1 Connect the USB device to the USB jack on the recorder.

2 Insert a blank DVD-RW/DVD-R (Video mode).

3 Press SYSTEM MENU.

The System Menu appears.

4 Select "Photo Album," and press ENTER.

The "Photo Album" menu appears.

5 Select "Copy Photos from a Digital Camera," and press ENTER.

The display asks for confirmation.

6 Select "Yes," and press ENTER.

- To cancel, select "No."

Hint

See "8. Reformatting a Disc" (page 42) to format DVD-RWs/DVD-Rs in Video mode.

Notes

- During copying, other operations cannot be performed.
- While copying JPEG image files, timer recordings are unavailable. If the timer is set during copying, the recorder starts the timer recording after copying is finished.

Copying JPEG image files or albums on the HDD (HDD ↔ HDD)

1 Press SYSTEM MENU.

The System Menu appears.

2 Select "Photo Album," and press ENTER.

The "Photo Album" menu appears.

3 Select "View/Edit Photos on the HDD," and press ENTER.

The "Photo Album" list appears.

4 **Select an album using ↑/↓.**
To copy the selected album, go to step 6.
To copy a JPEG image file, go to step 5.

5 **Press ENTER, and select a JPEG image file using ↑/↓.**

6 **Press →.**
The sub-menu appears.

7 **Select an item, and press ENTER.**
To copy two or more albums or files, select "Multi-Mode."
To copy the selected album, select "Copy Album Contents" in "Album Options," and go to step 12.
To copy the selected files, select "Copy" in "File Options," and go to step 12.

8 **Select an album or JPEG image file, and press ENTER.**
A check mark appears in the check box by the selected item.
- To clear the check mark, press ENTER again.
- To clear all check marks, select "Single-Mode."

9 **Repeat step 8 to select all of the albums or JPEG image files you want to copy.**

10 **Press →.**
The sub-menu appears.

11 **Select "Copy," and press ENTER.**

12 **Select the destination album using ↑/↓, and press ENTER.**
- To cancel, select "No."

Note

Albums or JPEG image files are not copied to the HDD in the following cases.
– when the HDD disc space is insufficient for copying.
– when there are already the maximum number of files and/or albums on the HDD.

Copying JPEG image albums to a disc (HDD → DVD-RW/DVD-R)

You can copy the edited JPEG image albums to a DVD-RW/DVD-R (Video mode).
A slideshow is also recorded to the disc as a video file. You can play the slideshow on other DVD equipment that may not be compatible with the playback of JPEG image files.

1 **Insert a DVD-RW/DVD-R (in Video mode).**

2 **Press SYSTEM MENU.**
The System Menu appears.

3 **Select "Photo Album," and press ENTER.**
The "Photo Album" menu appears.

4 **Select "View/Edit Photos on the HDD," and press ENTER.**
The "Photo Album" list appears.

5 **Select an album using ↑/↓, and press →.**
The sub-menu appears.

6 **Select "Multi-Mode," and press ENTER.**
To copy the album selected in step 5 only, go to step 10.

7 **Select an album, and press ENTER.**
A check mark appears in the check box by the selected item.
- To clear the check mark, press ENTER again.
- To clear all check marks, select "Single-Mode."

8 **Repeat step 7 to select all of the albums you want to copy.**

9 **Press →.**
The sub-menu appears.

10 **Select "Copy to DVD," and press ENTER.**
The display asks for confirmation.

11 Select "Yes," and press ENTER.

The selected JPEG image albums are copied in the "PICTURE" folder on the disc.
The JPEG image album names are automatically labeled as "***ALBUM."
If you want to play the disc on other DVD equipment, finalize the disc (page 39).
• To cancel, select "No."

Hints

- See "8. Reformatting a Disc" (page 42) to format DVD-RWs/DVD-Rs in Video mode.
- See the "Photo Album" list to check which albums have been copied (page 93).

Notes

- You may not be able to play the slideshow depending on DVD equipment.
- You cannot copy JPEG image files to a recordable DVD which has been recorded using other recorders/devices.
- DATA DVDs finalized on this recorder may not be able to play on other equipment (page 39).
- No more than 99 slideshows can be recorded to a disc.
- When copying an album containing more than 99 JPEG image files to a disc, slideshows will be created with every 99 JPEG image files and recorded to a disc.
- For DVD-Rs, the available disc space does not increase even if you erase slideshows.

Copying JPEG image files to a disc (HDD → DVD-RW/DVD-R)

You can copy the edited JPEG image files to a DVD-RW/DVD-R (Video mode).
A slideshow is also recorded to the disc as a video file. You can play the slideshow on other DVD equipment that may not be compatible with the playback of JPEG image files.

1 Insert a DVD-RW/DVD-R (in Video mode).

2 Press SYSTEM MENU.

The System Menu appears.

3 Select "Photo Album," and press ENTER.

The "Photo Album" menu appears.

4 Select "View/Edit Photos on the HDD," and press ENTER.

The "Photo Album" list appears.

5 Select an album using ↑/↓, and press ENTER.

The photo list appears.

6 Select a JPEG image file using ↑/↓, and press →.

The sub-menu appears.

7 Select "Multi-Mode," and press ENTER.

To copy the JPEG image file selected in step 6 only, go to step 11.

8 Select a JPEG image file, and press ENTER.

A check mark appears in the check box by the selected item.
• To clear the check mark, press ENTER again.
• To clear all check marks, select "Single-Mode."

9 Repeat step 8 to select all of the JPEG image files you want to copy.

10 Press →.

The sub-menu appears.

11 Select "Copy to DVD," and press ENTER.

The display asks for confirmation.

12 Select "Yes," and press ENTER.

The selected JPEG image files are copied in the "PICTURE" folder on the disc.
The JPEG image file names are automatically labeled as "PHOT****."
If you want to play the disc on other DVD equipment, finalize the disc (page 39).
• To cancel, select "No."

To select a JPEG image file from a different album

1 Switch to the album list in step 8.
For instructions, see "To switch between the album list and JPEG image file list" on page 94.

2 Select an album using ↑/↓, and press ←.

3 Switch to the JPEG image file list.
For instructions, see "To switch between the album list and JPEG image file list" on page 94.

4 Select a JPEG image file using ↑/↓, and press ENTER.

Hints

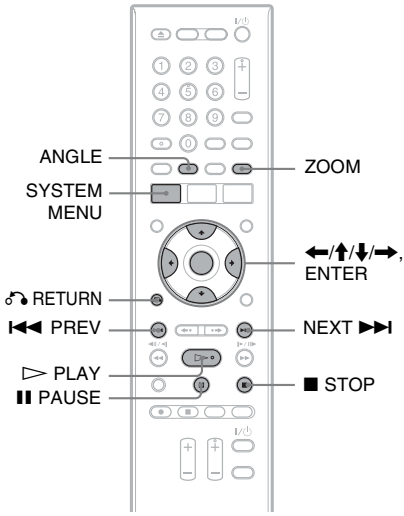
- See "8. Reformatting a Disc" (page 42) to format DVD-RWs/DVD-Rs in Video mode.
- See the "Photo Album" list to check which albums have been copied (page 93).

Notes

- You may not be able to play the slideshow depending on DVD equipment.
- You cannot copy JPEG image files to a recordable DVD which has been recorded using other recorders/devices.
- DATA DVDs finalized on this recorder may not be able to play on other equipment (page 39).
- No more than 99 slideshows can be recorded to a disc.
- For DVD-Rs, the available disc space does not increase even if you erase slideshows.

Using the "Photo Album" List

You can play JPEG image files on the HDD, DATA DVDs/DATA CDs, or connected USB device using the "Photo Album" list.



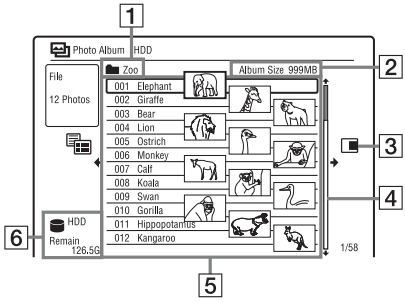
1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Select "Photo Album," and press ENTER.**
The "Photo Album" menu appears.

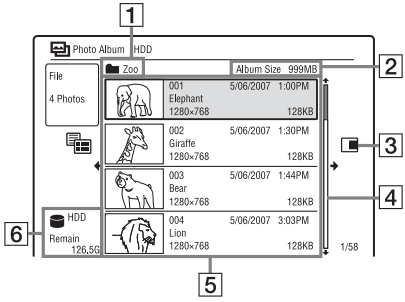
3 **Select the item, and press ENTER.**
To play JPEG image files on the HDD, select "View/Edit Photos on the HDD."
To play JPEG image files on DATA CDs/DATA DVDs, select "View Photos on a CD/DVD."
To play JPEG image files from the connected USB device, select "View Photos on a USB Device."
The "Photo Album" list appears.

4 **Select an album using ↑/↓, and press ENTER.**
To show the 4-Photo List or 1-Photo List, press ← to select "Title View," and press ENTER, then select "4 Photos" or "1 Photo" using ↑/↓, and press ENTER.

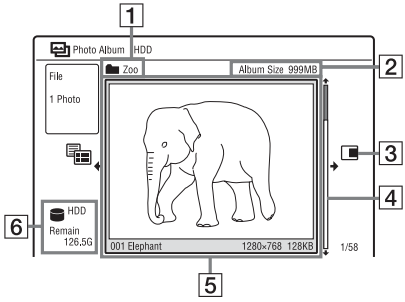
12-Photo List (Example: HDD)



4-Photo List



1-Photo List

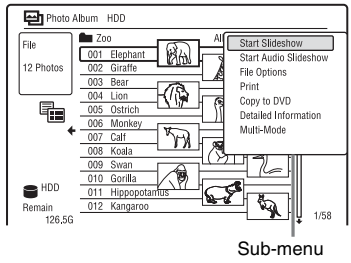


1 Album name

2 Album size

3 Sub-menu

Press ➡ to display the sub-menu. The sub-menu displays options applicable only to the selected item. The displayed options differ depending upon the model, situation, and disc type.



4 Scroll bar:

Appears when all of the JPEG image files do not fit on the list. To view the hidden JPEG image files, press ↑/↓.

5 Album and JPEG image file information:

Displays the image, JPEG image file number, recording date and time, JPEG image file name, and JPEG image file size.

6 Disc type and remaining space of current disc

To scroll the list display by page (Page mode)

Press ⏮ PREV/NEXT ⏭ while the "Photo Album" list is displayed. Each time you press ⏮ PREV/NEXT ⏭, the entire "Photo Album" list changes to the next/previous page of albums/JPEG image files.

To switch between the album list and JPEG image file list

1 Press ← while the "Photo Album" list is displayed.

2 Select "Display Mode" using ↑/↓, and press ENTER.

3 Select "File" or "Album" using ↑/↓, and press ENTER.

To turn off the "Photo Album" list

Press SYSTEM MENU.

To reload the files or folders

When a disc or the connected USB device contains 1,000 or more files and/or 100 or more folders, select “Read next” in the “Photo Album” list, and press ENTER to view unloaded files or folders.
It may take a few minutes to load files or folders.

Note

The thumbnail for a file that cannot be playable on the recorder is displayed as “⚠.”

Viewing a JPEG image file

1 Follow steps 1 to 4 of “Using the “Photo Album” List.”

The “Photo Album” list appears.
Switch to the album list, if necessary.

2 Select a JPEG image file using ↑/↓, and press ENTER.

The selected JPEG image file is displayed on the entire screen.

To display the detailed information

1 Select a JPEG image file, and press →.

2 Select “Detailed Information,” and press ENTER.
The detailed information for the selected JPEG image file appears.

Playing a slideshow

1 Follow steps 1 to 4 of “Using the “Photo Album” List.”

The “Photo Album” list appears.
Switch between the album list and JPEG image file list, if necessary.

2 Select an album or JPEG image file using ↑/↓, and press ▷ PLAY.

The slideshow starts.
If you press ▷ PLAY while selecting a JPEG image file, the slideshow starts from the selected JPEG image file.

To play a slideshow with the sound (HDD only)

You can enjoy a slideshow while listening to the sound stored in the HDD.

1 Select “View/Edit Photos on the HDD” in step 3 of “Using the “Photo Album” List” on page 93.
The “Photo Album” list appears.
Switch between the album list and JPEG image file list, if necessary.

2 Select an album or JPEG image file using ↑/↓, and press →.

3 Select “Start Audio Slideshow,” and press ENTER.

→continued

4 Select a genre using ←/→.
For details about assigning a genre, see "Managing Audio Tracks on the Music Jukebox" on page 88.

5 Select "Start," and press ENTER.
The slideshow and the playback from the first track of the selected genre start.

Notes

- Depending on the aspect ratio, some pictures may be displayed with black bands at top and bottom, or left and right.
- Large picture files may take a few seconds to display. This is not a malfunction.
- All albums or tracks in the selected genre will be played during Slideshow even if some albums or tracks are set to skip.

To stop a slideshow

Press ■ STOP or ↩ RETURN.

To pause a slideshow

Press ❚❚ PAUSE.
Note that only slideshow pauses and the sound continues to play.

To view the next/previous image during a slideshow

Press ⏮ PREV/NEXT ⏭.

To zoom an image

Press ZOOM repeatedly during a slideshow. Each time you press ZOOM, the magnification changes as shown below.
2× → 4× → normal magnification
You can move the area you want to zoom using ←/↑/↓/→.

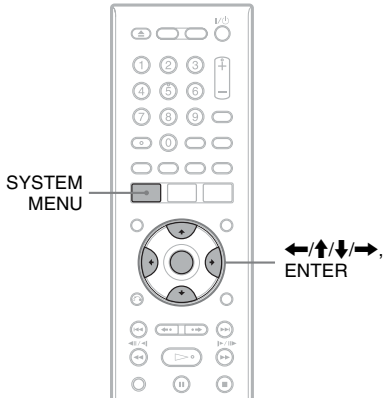
To rotate an image

Press ANGLE repeatedly during a slideshow. Each time you press ANGLE, the image turns clockwise by 90°.

Hint

You can start a slideshow by selecting "Start Slideshow" from the sub-menu.

Managing JPEG Image Files on the HDD



1 **Press SYSTEM MENU.**
The System Menu appears.

2 **Select "Photo Album," and press ENTER.**
The "Photo Album" menu appears.

3 **Select "View/Edit Photos on the HDD," and press ENTER.**
The "Photo Album" list appears.

4 **Select an album or JPEG image file, and press →.**
The sub-menu appears.

5 **Select an option, and press ENTER.**
You can make the following edits to the album/JPEG image file.

"Start Slideshow": Starts a slideshow (page 95).
"Start Audio Slideshow" (HDD only): Starts a slideshow with the sound (page 95).
"New Album": Creates a new album.

"Album Options"
- "Erase Album": Erases the selected album.
- "Copy Album Contents": Copies all JPEG image files in the selected album to the HDD (page 90).

- “Rename Album”: Changes the selected album name (page 36).
- “Protect Album Contents”: Protects all JPEG image files in the selected album.
- “Cancel Protection”: Cancels protection of all JPEG image files in the selected album.

“Copy to DVD”: Copies the selected album or JPEG image file to a DVD (page 91).
“Multi-Mode”: Selects multiple albums or JPEG image files to edit.
“Copy all to HDD”: Copies all the albums and JPEG image files to the HDD (page 89).
“Copy to HDD”: Copies the selected album or JPEG image file to the HDD (page 89).

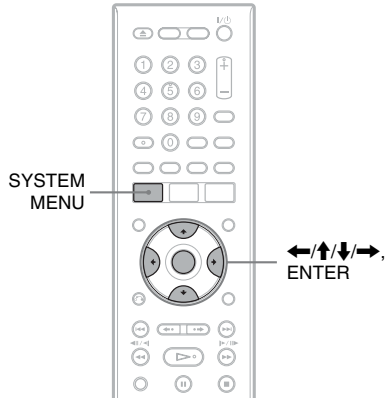
“File Options”
- “Erase”: Erases the selected JPEG image file.
- “Copy”: Copies the selected JPEG image file (page 90).
- “Rename File”: Changes the selected JPEG image file name (page 36).
- “Protect”: Protects the selected JPEG image file. Select again to cancel the protection.

“Print”: Prints the selected JPEG image file (page 97).
“Detailed Information”: Displays the detailed information for the selected JPEG image file (page 95).

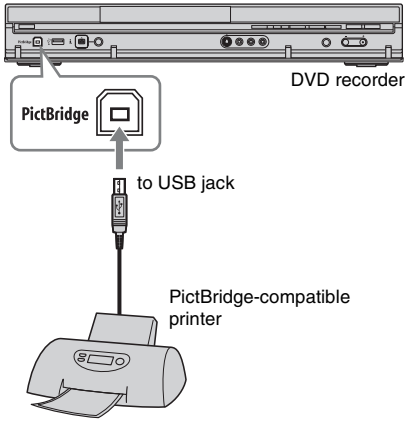
“Single-Mode”: Cancels “Multi-Mode.”

Printing JPEG Image Files

You can print JPEG image files on the HDD or connected USB device by connecting a PictBridge-compatible printer to the USB jack on the recorder.
Refer to the instructions supplied with the printer.



1 Connect a PictBridge-compatible printer to the USB jack on the recorder.



2 Connect the USB device to the USB jack on the recorder.

When printing JPEG image files on the HDD, skip this step.

3 Press SYSTEM MENU.

The System Menu appears.

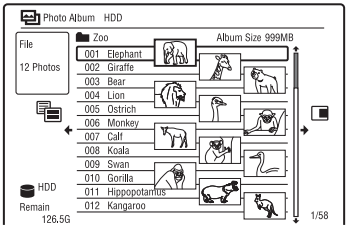
4 Select "Photo Album," and press ENTER.

The "Photo Album" menu appears.

5 Select the item, and press ENTER.

To print JPEG image files on the HDD, select "View/Edit Photos on the HDD."
To print JPEG image files from the connected USB device, select "View Photos on a USB Device."
The "Photo Album" list appears.

6 Select an album, and press ENTER.



7 Select a file using ↑/↓, and press →.

The sub-menu appears.

8 Select the item, and press ENTER.

To print two or more files, select "Multi-Mode."
To print the file selected in step 7 only, go to step 12.

9 Select a file, and press ENTER.

A check mark appears in the check box by the selected item.

- To clear the check mark, press ENTER again.
- To clear all check marks, select "Single-Mode."

10 Repeat step 9 to select all files you want to print.

11 Press →.

The sub-menu appears.

12 Select "Print," and press ENTER.

The display asks for confirmation.

13 Select "Start," and press ENTER.

You can set the paper size and layout. Refer to the operating instructions supplied with the printer.

To cancel printing

Press ENTER.

To display the connected printer

Select "Confirm Printer" of "USB" in the "Options 2" setup (page 115).

To restart the connected USB device

Select "Restart USB Device" of "USB" in the "Options 2" setup (page 115).

Hint

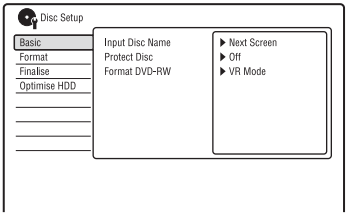
Printing options, such as paper size or layout, differ depending on the printer. For details, refer to the instructions supplied with the printer.

Disc Settings (Disc Setup)

The “Disc Setup” setup allows you to adjust DVD related settings.

Press DISC SETUP while the recorder is in stop mode.

The “Disc Setup” setup appears with the following options. The default settings are underlined.



Hint

You can also select the “Disc Setup” menu in the System Menu.

Basic

◆ Input Disc Name

You can label a disc.
For details, see page 38.

◆ Protect Disc

You can protect a disc against erasure.
For details, see page 38.

◆ Format DVD-RW (DVD-RW only)

The recorder automatically starts formatting in VR mode or Video mode, whichever is selected below, when a new, unformatted DVD-RW is inserted.

VR Mode	Automatically formats the disc in VR mode.
Video Mode	Automatically formats the disc in Video mode.

Format

You can manually re-format a DVD+RW, DVD-RW, or DVD-R disc to make a blank disc.
For details, see page 42.

Finalise

Finalizes a disc to play it on other DVD equipment.
For details, see page 39.

Optimise HDD

As you record, erase and edit recordings repeatedly, the HDD file system gradually becomes fragmented. To ‘clean up’ all the fragmented files, optimise the HDD periodically. When the HDD needs optimising, a message recommending optimisation will appear automatically.

1 Select “Optimise HDD” in “Disc Setup,” and press ENTER.

2 Select “Start,” and press ENTER.
A progress bar appears and the optimisation starts.
To cancel optimisation, press ENTER. The HDD will be partly optimised.

Notes

- It will take about eight hours to optimise the HDD. During optimisation, other operations, such as recording or playback, cannot be performed.
- You cannot optimise the HDD when the HDD disc space is insufficient for optimising. Erase titles to open up disc space (page 63).

Format HDD.

You can format the HDD and resolve the problem when the hard disk error occurred. “Format HDD.” can be selected only when the hard disk needs formatting. Note that all of the recorded content on the HDD will be erased.

1 Select “Format HDD.” in “Disc Setup,” and press ENTER.

2 Select “Start,” and press ENTER.

Recorder Settings (Basic)

The “Basic” setup helps you to make clock and other recorder related settings.

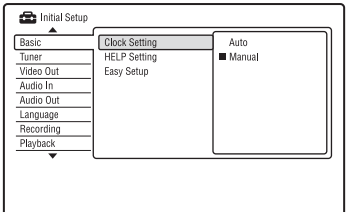
1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Basic,” and press ENTER.

The “Basic” setup appears with the following options. The default settings are underlined.

To turn off the display, press SYSTEM MENU.



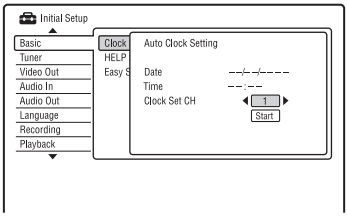
Clock Setting

◆ Auto (Auto Clock Set)

Turns on the Auto Clock Set function when a channel in your local area broadcasts a time signal.

1 Select “Clock Setting” in “Basic,” and press ENTER.

2 Select “Auto,” and press ENTER.



3 Press ←/→ repeatedly until the channel of the station that carries a time signal appears.

4 Press ↓ to select “Start,” and press ENTER.

- If the recorder does not receive a time signal from any station, press ↩ RETURN and set the clock manually.
- If the Auto Clock Set function did not set the clock correctly for your local area, try another station for the Auto Clock Set function or set the clock manually.

Note

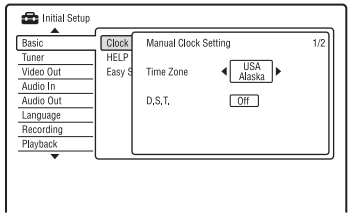
The Auto Clock Set function does not work while the recorder is standing by for Synchro-Recording.

◆ Manual (Manual Clock Set)

Set the clock manually.

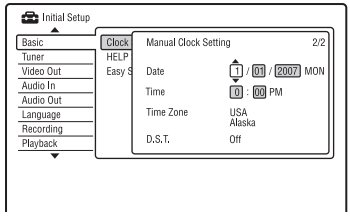
1 Select “Clock Setting” in “Basic,” and press ENTER.

2 Select “Manual,” and press ENTER.



3 Press ←/→ to select the time zone for your area, and press ↓.

4 Select “On” using ←/→ if you are now on D.S.T (Daylight Saving Time), and press ENTER.



5 Press ↑/↓ to set the month, and press →.
Set the day, year, hour, and minutes in sequence. Press ←/→ to select the item to be set, then press ↑/↓ to set the numbers. The day of the week is set automatically.

To change the numbers, press ← to return to the item to be changed, and press ↑/↓.

6 Press ENTER to start the clock.

HELP Setting

On	Displays Help information for GUI displays.
Off	Does not set to HELP setting mode.

Easy Setup (Resetting the Recorder)

Select this to run the "Easy Setup" program.

1 Select "Easy Setup" in "Basic," and press ENTER.

2 Select "Start," and press ENTER.

3 Follow the instructions for "Easy Setup" (page 24) from step 2.

Antenna Reception Settings (Tuner)

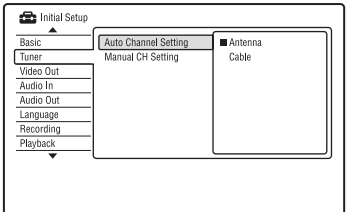
The "Tuner" setup helps you to make tuner and channel settings for the recorder.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select "Initial Setup," and press ENTER.

3 Select "Tuner," and press ENTER.

The "Tuner" setup appears with the following options. The default settings are underlined.
To turn off the display, press SYSTEM MENU.



Auto Channel Setting

Automatically presets the receivable channels. The recorder can receive VHF channels 2 to 13, UHF channels 14 to 69, and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using Auto Channel Setting.

1 Select "Auto Channel Setting" in "Tuner," and press ENTER.

2 Select "Antenna" or "Cable," and press ENTER.
"Antenna"(Default): Presets VHF and UHF channels.
"Cable": Presets cable TV channels.
The channel order will be set.
If any channels are unused or contain unwanted channels, you can disable them (page 102).

Note

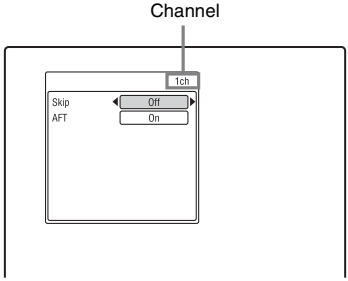
You cannot preset channels for the connected cable box or satellite receiver.

Manual CH Setting

Presets channels manually.
If some channels could not be set using the "Easy Setup" function, you can set them manually.
If there is no sound or if the picture is distorted, the wrong tuner system may have been preset during "Easy Setup." Set the correct tuner system manually in the steps below.

1 Select "Manual CH Setting" in "Tuner," and press ENTER.

2 Select "Next Screen," and press ENTER.



3 Press ⏮ PREV/NEXT ⏭ to select the channel.

4 Select the item you want to change using ↑/↓, and change the settings using ←/→, then press ENTER.

- To preset another channel, repeat from step 4.

Skip

On	Select this when the channel is unused or contains unwanted channels. The selected position will be skipped when you press CH +/–.
Off	Does not skip the selected channel.

AFT

On	Turns on the Auto Fine Tuning function. Normally select this position.
Off	Allows you to adjust the picture manually.

- If the Auto Fine Tuning function does not work effectively, select "Off" and press ↓. Press ←/→ to obtain a clearer picture, and press ENTER.

Video Settings (Video Out)

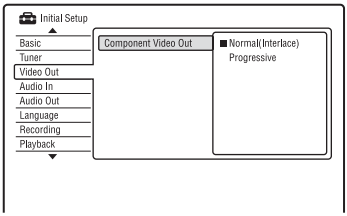
The “Video Out” settings will adjust items related to the image, such as size and color. Select the settings according to the type of TV, tuner, or decoder connected to the DVD recorder.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Video Out,” and press ENTER.

The “Video Out” setup appears with the following options. The default settings are underlined.



Component Video Out

Selects the signal format in which the recorder outputs video signals: interlace or progressive, from the COMPONENT VIDEO OUT jacks.

Normal(Interlace)	Outputs signals in the interlace format.
Progressive	Outputs signals in the progressive format. Select this when you want to view progressive signals.

Notes

- When picture noise appears after you set the recorder to progressive format, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the recorder.
- No video signals are output when using the HDMI connection.

Audio Input Settings (Audio In)

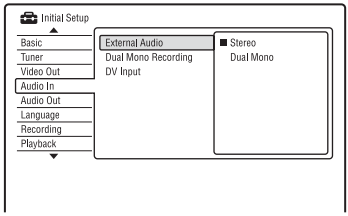
The “Audio In” setup allows you to adjust the sound according to the playback and connection conditions.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Audio In,” and press ENTER.

The “Audio In” setup appears with the following options. The default settings are underlined.



External Audio

Stereo	Select this when receiving stereo programs from connected equipment.
Dual Mono	Select this when receiving Dual Mono program from connected equipment.

Hint

If you select “Dual Mono,” then record Dual Mono programs on the HDD (when “HDD Recording Format” is set to “Video Mode Off” (except in PCM recording mode)) or a DVD-RW/DVD-R in VR mode (except in PCM recording mode), both audio channels are recorded and you can select the sound while playing by using the AUDIO button.

Note

When receiving audio input signals from the DV input jack, the recorder automatically selects “Stereo” or “Dual Mono” regardless of the “External Audio” setting.

➡continued

Dual Mono Recording

Selects the sound to be recorded.

L	Records only the main sound (left channel).
R	Records the sub sound (right channel).

Hint

Select “L” if “Dual Mono” is set in the “External Audio” setup, and you want to record the left channel audio on the HDD (when “HDD Recording Format” is set to “Video Mode On” (page 109) (or in PCM recording mode)) or DVDs in Video mode (or in PCM recording mode).

DV Input

Select the setting for the audio input when DV camcorder dubbing.
Select “Mix (Stereo 1: 75 %)”/“Mix (Stereo 1: 50 %)”/“Mix (Stereo 1: 25 %)” or “Stereo 2” only if you have added a second audio when recording with your digital video camera.

Stereo 1	Records original sound only. Normally select this when dubbing a DV format tape.
Stereo 2	Records additional audio only.
Mix (Stereo 1: 75 %)	Records both stereo 1 and 2.
Mix (Stereo 1: 50 %)	
Mix (Stereo 1: 25 %)	

Audio Output Settings (Audio Out)

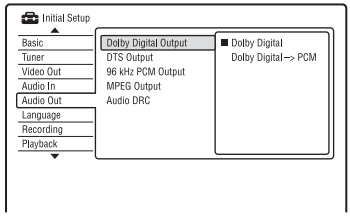
The “Audio Out” setup allows you to switch the method of outputting audio signals when you connect a component such as an amplifier (receiver) with a digital input jack. If you connect a component that does not accept the selected audio signal, a loud noise (or no sound) will come from the speakers, and may affect your ears or cause speaker damage.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Audio Out,” and press ENTER.

The “Audio Out” setup appears with the following options. The default settings are underlined.



Dolby Digital Output (HDD/DVDs only)

Selects the type of Dolby Digital signal.

Dolby Digital	Select this when the recorder is connected to an audio component with a built-in Dolby Digital decoder.
Dolby Digital -> PCM	Select this when the recorder is connected to an audio component lacking a built-in Dolby Digital decoder.

Note

If the HDMI OUT jack is connected to equipment not compatible with Dolby Digital signals, the PCM signals will be automatically output even when you select “Dolby Digital.”

DTS Output (DVD VIDEOs only)

Selects whether or not to output DTS signals.

On	Select this when the recorder is connected to an audio component with a built-in DTS decoder.
Off	Select this when the recorder is connected to an audio component without a built-in DTS decoder.

Note

When HDMI output is performed to equipment not compatible with DTS signals, the signals will not be output regardless of the "DTS Output" setting.

96 kHz PCM Output (DVD VIDEOs only)

Selects the sampling frequency of the audio signal.

96 kHz -> 48 kHz	The audio signals of DVD VIDEOs are converted to 48 kHz and output.
96 kHz	All signals containing 96 kHz are output without conversion. However, the signals are output at 48 kHz if copyright-protected signals are contained.

Notes

- "96 kHz PCM Output" setting has no effect when audio signals are output from the LINE OUT (R-AUDIO-L) jacks. If the sampling frequency is 96 kHz, signals are simply converted to analog signals and output.
- If the HDMI OUT jack is connected to equipment not compatible with 96 kHz signals, 48 kHz PCM will be automatically output even when you select "96 kHz."

MPEG Output (DVD VIDEOs only)

Selects the type of MPEG audio signal.

MPEG	Select this when the recorder is connected to an audio component with a built-in MPEG decoder.
MPEG -> PCM	Select this when the recorder is connected to an audio component without a built-in MPEG decoder. If you play MPEG audio sound tracks, the recorder outputs stereo signals via the DIGITAL OUT (COAXIAL) jack.

Note

If the HDMI OUT jack is connected to equipment not compatible with MPEG audio signals, the PCM signals will be automatically output even when you select "MPEG."

Audio DRC (Dynamic Range Control) (DVDs only)

Selects the dynamic range (difference between soft and loud sounds) setting when playing a DVD that conforms to "Audio DRC." This affects the output from the following jacks:

– LINE OUT R-AUDIO-L jacks
– DIGITAL OUT (COAXIAL)/HDMI OUT jack only when "Dolby Digital Output" is set to "Dolby Digital -> PCM" (page 104).

On	Makes low sounds clear even if you turn the volume down.
Off	Normally select this position.

Language Settings (Language)

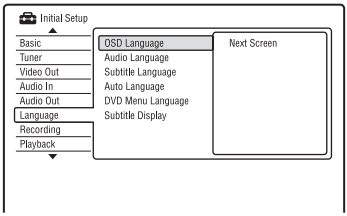
The “Language” setup allows you to adjust language settings.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Language,” and press ENTER.

The “Language” setup appears with the following options. The default settings are underlined.



OSD Language

Switches the display language on the screen.

Audio Language (DVD VIDEO only)

Switches the language of the sound track.

Subtitle Language (DVD VIDEO only)

Switches the language of the subtitles recorded on the disc.

Auto Language

The “Auto Language” function is available when “Audio Language” and “Subtitle Language” are set to the same language, and “Subtitle Display” is set to “On.”

On	For DVD VIDEOs whose main audio track is the language you set in “Audio Language” and “Subtitle Language,” the recorder plays the main audio track without subtitles. For DVD VIDEOs whose main audio track is not the language you set in “Audio Language” and “Subtitle Language,” the recorder plays the main audio track with subtitles in the language you set.
Off	Turns off the function.

DVD Menu Language (DVD VIDEO only)

Switches the language for the DVD menu. Select “w/Subtitle Language” to set the same language as the language you set in “Subtitle Language.”

Subtitle Display

On	Displays subtitles.
Off	Does not display subtitles.
Assist Subtitle	Displays special assistive subtitles, where available.

Hint

If you select “Others” in “Audio Language,” “Subtitle Language,” or “DVD Menu Language,” press ↓, and enter a language code from “Language Code List” on page 130.

Note

If you select a language in “DVD Menu Language,” “Subtitle Language,” or “Audio Language” that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

Recording Settings (Recording)

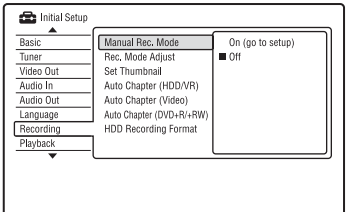
The “Recording” setup allows you to adjust recording settings.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Recording,” and press ENTER.

The “Recording” setup appears with the following options. The default settings are underlined.



Manual Rec. Mode

On (go to setup)	Allows you to select all recording modes. Select this, and press ENTER. Then, select a recording mode using ←/→, and press ENTER.
Off	Allows you to select standard recording modes only.

◆**Manual recording mode**

The table below shows the approximate recording times for the HDD and the different DVD types in each manual recording mode, as well as the standard recording mode equivalents.

The recording time for the HDD and DVDs

Recording mode	Approx. recording time (hours)		
	HDD	DVD+RW/ DVD-RW/ DVD+R/ DVD-R	DVD+R DL/ DVD-R DL
HQ+[*1]	23	–	–
PCM[*2]	34	1 hr. 1 min.	1 hr. 51 min.
MN32 (HQ)	34	1 hr. 1 min.	1 hr. 51 min.
MN31	36	1 hr. 5 min.	1 hr. 57 min.
MN30	39	1 hr. 10 min.	2 hr. 6 min.
MN29	42	1 hr. 15 min.	2 hr. 15 min.
MN28	45	1 hr. 20 min.	2 hr. 24 min.
MN27	48	1 hr. 25 min.	2 hr. 33 min.
MN26 (HSP)	50	1 hr. 30 min.	2 hr. 41 min.
MN25	53	1 hr. 35 min.	2 hr. 50 min.
MN24	56	1 hr. 40 min.	2 hr. 59 min.
MN23	59	1 hr. 45 min.	3 hr. 8 min.
MN22	62	1 hr. 50 min.	3 hr. 17 min.
MN21 (SP)	68	2	3 hr. 35 min.
MN20	73	2 hr. 10 min.	3 hr. 53 min.
MN19	79	2 hr. 20 min.	4 hr. 11 min.
MN18 (LSP)	84	2 hr. 30 min.	4 hr. 29 min.
MN17	90	2 hr. 40 min.	4 hr. 47 min.
MN16	96	2 hr. 50 min.	5 hr. 5 min.
MN15 (ESP)	100	3	5 hr. 23 min.
MN14	105	3 hr. 10 min.	5 hr. 41 min.
MN13	110	3 hr. 20 min.	5 hr. 59 min.
MN12	115	3 hr. 30 min.	6 hr. 17 min.
MN11	120	3 hr. 40 min.	6 hr. 35 min.
MN10	125	3 hr. 50 min.	6 hr. 53 min.
MN9 (LP)	135	4	7 hr. 11 min.

→continued

Recording mode	Approx. recording time (hours)		
	HDD	DVD+RW/ DVD-RW/ DVD+R/ DVD-R	DVD+R DL/ DVD-R DL
MN8	150	4 hr. 30 min.	8 hr. 4 min.
MN7	165	5	8 hr. 58 min.
MN6[*3] (EP)	200	6	10 hr. 46 min.
MN5[*3]	235	7	12 hr. 34 min.
MN4[*3] (SLP)	270	8	14 hr. 21 min.
MN3[*3*4] (SEP[*4])	340	10	17 hr. 57 min.
MN2[*3*4]	405	12	21 hr. 32 min.
MN1[*3*4]	455	13 hr. 22 min.	24

[*1] Records in higher quality (15 Mbps). HQ+ mode is not available for DVDs. When recording to DVDs, the recording mode automatically switches to HQ mode even if you set to HQ+ mode.

[*2] Audio signals are recorded in 48 kHz PCM format, and video signals are recorded in HQ mode.

[*3] Titles recorded in MN6 or lower mode cannot be dubbed to DVD+RWs/DVD+Rs at high speed.

[*4] SEP, MN1, MN2, or MN3 mode is not available for DVD+RWs/DVD+Rs/DVD+R DLs. When recording to DVD+RWs/DVD+Rs, the recording mode automatically switches to SLP mode even if you set to SEP, MN1, MN2, or MN3 mode.

Hint

Audio signals are recorded in Dolby Digital 2 ch format (except for PCM mode).

◆Resolution

For the HDD (“HDD Recording Format” is set to “Video Mode Off”)/DVD-RW (VR mode)/ DVD-R (VR mode)

HQ+, PCM, MN32 to MN16: 720 × 480
MN15 to MN12: 544 × 480
MN11 to MN9: 480 × 480
MN8 and MN7: 352 × 480
MN6 to MN1: 352 × 240

For the HDD (“HDD Recording Format” is set to “Video Mode On”)/DVD+RW/DVD-RW (Video mode)/DVD+R/DVD-R (Video mode)

HQ+, PCM, MN32 to MN9: 720 × 480
MN8 and MN7: 352 × 480
MN6 to MN1: 352 × 240

Rec. Mode Adjust

On	Automatically adjusts the recording mode to enable the entire program to be recorded (page 46).
Off	Turns off the function.

Set Thumbnail

Selects a scene for the thumbnail picture shown in the Title List.

0 seconds	The first frame of the title is set for the thumbnail picture.
30 seconds	The frame at 30 seconds from the first frame is set for the thumbnail picture.
3 minutes	The frame at 3 minutes from the first frame is set for the thumbnail picture.

Auto Chapter (HDD/VR) (HDD/DVD-RW/ DVD-R in VR mode only)

On	The recorder detects changes in the picture and sound and automatically inserts chapter marks (up to 99 chapters for one title recorded on the HDD).
Off	No chapter mark is inserted.

Notes

- The actual chapter mark interval may vary depending on the amount of information contained in the video to be recorded.
- Chapter marks are automatically inserted, where the date or time information changes on the tape, when “Auto Chapter (HDD/VR)” is set to “On” during DV dubbing to the HDD or a DVD-RW/ DVD-R (VR mode).

Auto Chapter (Video) (DVD-RW/DVD-R in Video mode only)

No Separation	No chapter mark is inserted.
10 minutes	Inserts chapter marks at approximately 10-minute intervals.
15 minutes	Inserts chapter marks at approximately 15-minute intervals.

Auto Chapter (DVD+R/+RW) (DVD+RW/DVD+R only)

No Separation	No chapter mark is inserted.
10 minutes	Inserts chapter marks at approximately 10-minute intervals.
15 minutes	Inserts chapter marks at approximately 15-minute intervals.

HDD Recording Format

Selects the HDD recording format.

Video Mode Off	Records to the HDD in VR mode. When recording either stereo or SAP programs, both main and sub sounds can be recorded.
Video Mode On	Records to the HDD in Video mode. When recording stereo and SAP programs, only one sound track (main or sub) can be recorded (page 104).

Hint

The HDD contents recorded in Video mode can be dubbed to a disc at high speed (page 72).

Playback Settings (Playback)

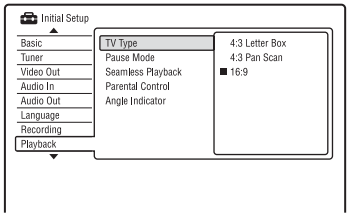
The “Playback” setup allows you to adjust the playback settings.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Playback,” and press ENTER.

The “Playback” setup appears with the following options. The default settings are underlined.



TV Type

Select the playback picture size according to the type of connected TV (wide-screen/wide mode TV or conventional 4:3 screen TV).

4:3 Letter Box	Select this when connecting to a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 Pan Scan	Select this when connecting to a 4:3 screen TV. Automatically displays a wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when connecting to a wide-screen TV or TV with a wide mode function.

➡continued

4:3 Letter Box

4:3 Pan Scan

16:9

Note

Depending on the disc, “4:3 Letter Box” may be selected automatically instead of “4:3 Pan Scan” or vice-versa.

Pause Mode

Selects the picture quality in pause mode.

Field	Outputs a stable, generally shake-free image.
Frame	Outputs a sharp image, but may be prone to shake.
Auto	Outputs a generally less sharp but more stable still image.

Seamless Playback (HDD/DVD-RW/DVD-R in VR mode only)

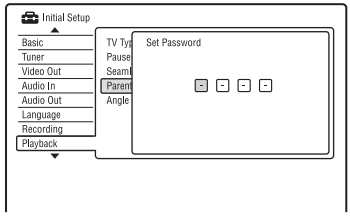
On	Playback is smooth, but with a trade-off against the accuracy of the edit points.
Off	You may notice momentary interruption at edited points during playback of a VR mode Playlist.

Parental Control (DVD VIDEO only)

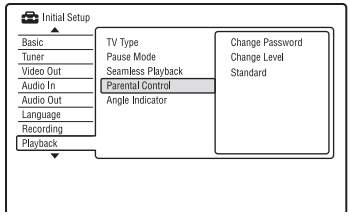
Playback of some DVD VIDEOs can be limited according to a predetermined level, such as the age of the users. Scenes may be blocked or replaced with different scenes.

1 Select “Parental Control” in “Playback,” and press ENTER.
When you have already registered a password, go to step 3.

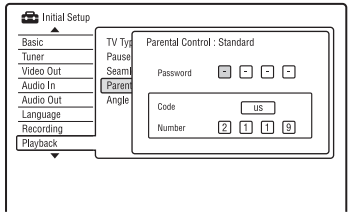
2 Select “Set Password,” and press ENTER.
The display for registering a new password appears.



3 Enter your four-digit password using the number buttons, and press ENTER.



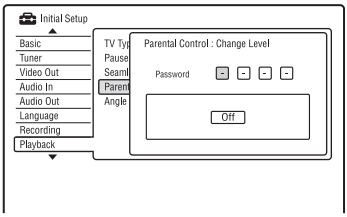
4 Select “Standard,” and press ENTER.
The “Parental Control : Standard” display appears.



5 Enter your four-digit password using the number buttons, and press ENTER.

6 Select “Code” (geographic area) as the playback limitation level, and press ENTER.
The area is selected.
- When you select “Number,” press the number buttons to select and enter a country/area code in the table (page 131), and press ENTER.

7 Select “Change Level,” and press ENTER.
The “Parental Control : Change Level” display appears.



8 Enter your four-digit password using the number buttons, and press ENTER.

9 Select the level.
The lower the value, the stricter the limitation.
Discs rated higher than the selected level will be restricted.

10 Press ENTER.
The Parental Control setting is complete.
To cancel the Parental Control setting for the disc, select “Off” in step 9.

◆Change Password

1 Select “Parental Control” in “Playback,” and press ENTER.

2 Select “Change Password,” and press ENTER.

3 Enter your four-digit password in the “Current Password” row using the number buttons, and press ENTER.

4 Enter a new password in the “New Password” row using the number buttons, and press ENTER.

Notes
- If you forget your password, reset the recorder (page 122).
- When you play discs which do not have the Parental Control function, playback cannot be limited on this recorder.
- Depending on the disc, you may be asked to change the Parental Control level while playing the disc. In this case, enter your password, then change the level.

Angle Indicator (DVD VIDEOs only)

On	Displays “” on the TV screen if various angles (multi-angles) for a scene are recorded on the disc.
Off	Does not display “” on the TV screen.

HDMI Settings (HDMI Output)

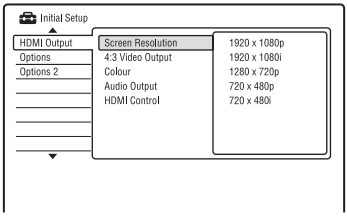
The “HDMI Output” setup allows you to adjust items related to the HDMI connection. You can select “HDMI Output” only when connecting equipment to the HDMI OUT jack.

1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “HDMI Output,” and press ENTER.

The “HDMI Output” setup appears with the following options. The default settings are underlined.
After connecting equipment to the HDMI OUT jack, “Screen Resolution,” “4:3 Video Output,” and “Colour” are automatically set to the appropriate settings.



Screen Resolution

Selects the type of video signals output from the HDMI OUT jack. If the picture is not clear, natural or to your satisfaction, try another option that suits the disc and your TV/projector, etc. For details, refer also to the instruction manual supplied with the TV/projector, etc.

1920 x 1080p	Sends 1920×1080p video signals.
1920 x 1080i	Sends 1920×1080i video signals.
1280 x 720p	Sends 1280×720p video signals.
720 x 480p	Sends 720×480p video signals.
720 x 480i	Sends 720×480i video signals.

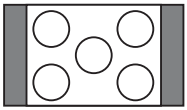
Notes

- When picture noise appears after you change the “Screen Resolution” setting, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the recorder.
- When “Colour” is set to “YCbCr 4:2:2” in the “HDMI Output” setup, you cannot select “720 x 480i.”

4:3 Video Output

This setting is effective only when you set “TV Type” to “16:9” in the “Playback” setup. Adjust this setting to watch 4:3 aspect ratio signals. If you can change the aspect ratio on your TV, change the setting on your TV, not this recorder.
Note that this setting is effective only for HDMI connection.

Full	Select this when you can change the aspect ratio on your TV.
Normal	Select this when you cannot change the aspect ratio on your TV. Shows a 4:3 size video with the aspect ratio as it is.



16:9 aspect ratio TV

Colour

Selects the method of outputting video signals for the HDMI jack.

RGB (0-255)	Outputs RGB (0-255) signals. Select this when connecting to an RGB (0-255) device.
RGB (16-235)	Outputs RGB (16-235) signals. Select this if colors appear overly rich and the black appears too deep.
YCbCr 4:2:2	Outputs 10-bit YCbCr 4:2:2 component signals.
YCbCr 4:4:4	Outputs 8-bit YCbCr 4:4:4 component signals.

Notes

- Some settings may not be available depending on the connected device.
- When a DVI device is connected, you cannot select "YCbCr 4:2:2" or "YCbCr 4:4:4."
- When "Screen Resolution" is set to "720 x 480i" in the "HDMI Output" setup, you cannot select "YCbCr 4:2:2."

Audio Output

Selects the type of audio signal output from the HDMI OUT jack.

Auto	Outputs Dolby Digital, MPEG and DTS audio signals as a bitstream signal. Normally select this position.
PCM	Converts all audio signals except for DTS signals to PCM.
Bitstream Priority	Select this if the connected device is compatible with bitstream audio.

Notes

- The PCM signals may not be output even when you select "Auto" depending on the "Audio Out" settings, number of audio channels, and the HDMI-connected device.
- The "Audio Output" function is not available when a DVI device is connected.

HDMI Control

On	Allows you to use the HDMI control features (page 19).
Off	Turns off the function.

Other Settings (Options)

The “Options” and “Options 2” setups allow you to set up other operational settings.

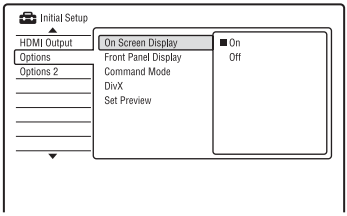
1 Press SYSTEM MENU while the recorder is in stop mode.

2 Select “Initial Setup,” and press ENTER.

3 Select “Options” or “Options 2,” and press ENTER.

The “Options” or “Options 2” setup appears with the following options. The default settings are underlined.

Example: “Options” setup



Options

On Screen Display

On	Automatically displays information on the screen when the recorder is turned on, etc.
Off	Displays information only when DISPLAY is pressed.

Front Panel Display

Adjusts the lighting of the front panel display.

On	Bright lighting.
Off	Turns off the lighting when the power is off.

Command Mode

Changes the Command Mode of the recorder to avoid interference with your other Sony DVD recorder or player.

1 Select “Command Mode” in “Options,” and press ENTER.

2 Select a Command Mode (DVD1, DVD2, or DVD3), and press ENTER.

Note

The default command mode setting for this recorder and the supplied remote is DVD3. The remote does not function if different command modes are set for the recorder and remote. Set the same command mode.

3 Set the Command Mode for the remote so it matches the Command Mode for the recorder you set above.

Follow the steps below to set the Command Mode on the remote.

① Hold down ENTER.

② While holding down ENTER, enter the Command Mode code number using the number buttons.

Command Mode	Code number
DVD1	number button 1
DVD2	number button 2
DVD3	number button 3

③ Hold down both the number and ENTER buttons at the same time for more than three seconds.

Hint

You can check the Command Mode for the recorder in the front panel display.

Command Mode	In the front panel display
DVD1	“1” appears.
DVD2	“2” appears.
DVD3	Either “1” or “2” does not appear.

DivX

◆ Registration Code

Displays the registration code of DivX video files for this recorder.
For more information, go to http://www.divx.com/vod on the Internet.

Set Preview (HDD only)

Selects the thumbnail type shown in the Title List.

Quick Preview	Plays short excerpts from throughout the selected title.
Normal	Plays the selected title from the beginning.

Options 2

USB

◆ Restart USB Device

Restarts the connected USB device if it does not respond to the recorder. If the connected USB device still does not work properly, try following:
– Turn the connected USB device off and on again.
– Disconnect and then connect the USB cable.

◆ Confirm Printer

Displays the manufacturer and model name of the printer connected to the recorder. Note that this function may not work depending on the printer.

Troubleshooting

If you experience any of the following difficulties while using the recorder, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power does not turn on.

➡ Check that the AC power cord is connected securely.

Picture

There is no picture.

➡ Re-connect all connecting cords securely.
➡ The connecting cords are damaged.
➡ Check the connection to your TV (page 13).
➡ Switch the input selector on your TV (such as to "VCR" and "AV 1") so that the signal from the recorder appears on the TV screen.
➡ If you connect the recorder to your TV via only the COMPONENT VIDEO OUT jacks, set "Component Video Out" in the "Video Out" setup to "Progressive" (page 103).
➡ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

Picture noise appears.

➡ If the picture output signal from your recorder passes through your VCR to get to your TV, or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience this problem even when you connect your recorder directly to your TV, try connecting your recorder to your TV's S VIDEO input.
➡ You have set the recorder to progressive format even though your TV cannot accept the progressive signal. In this case, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the recorder.
➡ Even if your TV is compatible with progressive format (480p) signals, the image may be affected when you set the recorder to progressive format. In this case, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the unit and the recorder is set to normal (interlace) format.
➡ Noise may appear in the pictures recorded on the HDD, which is due to the characteristics of HDD, and is not a malfunction.
➡ When playing a double-layer DVD, the video and audio may be momentarily interrupted at the point where the layers switch.

There is no picture or picture noise appears when connected to the DV IN jack.

➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the i.LINK cable again.

There is no picture or picture noise appears when connected to the HDMI OUT jack.

➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.
➡ If the HDMI OUT jack is used for video output, changing the "Screen Resolution" setting in the "HDMI Output" setup may solve the problem (page 112). Connect the TV and the recorder using a video jack other than HDMI OUT, and switch the TV's input to the connected video input so that you can see the on-screen displays. Change the "Screen Resolution" setting in the "HDMI Output" setup, and switch the TV's input back to HDMI. If the picture still does not appear, repeat the steps and try other options.

➡ The recorder is connected to an input device that is not HDCP compliant (page 17).
➡ When picture noise appears after you change the "Screen Resolution" setting, hold down ■ (stop) on the recorder, and press ⏏ (open/close) on the recorder.

TV program reception does not fill the screen.

➡ Set the channel manually in "Manual CH Setting" in the "Tuner" setup (page 102).
➡ Select the correct source using the INPUT button, or select a channel of any TV program using the CH +/– buttons.

TV program pictures are distorted.

➡ Reorient the TV antenna.
➡ Adjust the picture (see the TV's instruction manual).
➡ Place the recorder and TV farther apart.
➡ Place the TV and any bunched antenna cables farther apart.
➡ The antenna cable is connected to the VHF/UHF OUT jack on the recorder. Connect the cable to the VHF/UHF IN jack.

TV channels cannot be changed.

➡ The channel is skipped (page 102).
➡ A timer recording started, which changed the channels.

The picture from equipment connected to the recorder's input jack does not appear on the screen.

➡ If the equipment is connected to the LINE IN 1 jack, select "L1" in the front panel display by pressing INPUT.
If the equipment is connected to the LINE 2 IN jacks, select "L2" in the front panel display by pressing INPUT.
If the equipment is connected to the LINE IN 3 jacks, select "L3" in the front panel display by pressing INPUT.

The playback picture or TV program from the equipment connected through the recorder is distorted.

➡ If the playback picture output from a DVD player, VCR, or tuner goes through your recorder before reaching your TV, the copy-protection signal applied to some programs could affect picture quality. Disconnect the playback equipment in question and connect it directly to your TV.

The picture does not fill the screen.

➡ Set "TV Type" in the "Playback" setup in accordance with the screen size of your TV (page 109).

The picture does not fill the screen, even though the picture size is set in "TV Type" in the "Playback" setup.

➡ The picture size of the title is fixed.

Sound

There is no sound.

➡ Re-connect all connections securely.
➡ The connecting cord is damaged.
➡ The input source setting on the audio component or the connection to the audio component is incorrect.
➡ The recorder is in reverse play, fast-forward, slow motion, or pause mode.
➡ If the audio signal does not come through the DIGITAL OUT (COAXIAL)/HDMI OUT jacks, check the "Audio Out" setup (page 104).
➡ The recorder supports only MP3 audio, Dolby Digital and MPEG audio for DivX video files. Press AUDIO and select MP3 audio or MPEG audio.

➡continued

No sound is output from the HDMI OUT jack.

➡ Try the following: ①Turn the recorder off and on again. ②Turn the connected equipment off and on again. ③Disconnect and then connect the HDMI cord again.

➡ The HDMI OUT jack is connected to a DVI device (DVI jacks do not accept audio signals).

➡ The equipment connected to the HDMI OUT jack does not conform to the audio signal format. In this case, set "Audio Output" to "PCM" in the "HDMI Output" setup (page 113).

Sound is noisy.

➡ When playing a CD with DTS sound tracks, noise will come from the LINE OUT R-AUDIO-L jacks (page 80).

The sound volume is low.

➡ The sound volume is low on some DVDs. The sound volume may improve if you set "Audio DRC" in the "Audio Out" setup to "On" (page 105).

An alternate audio track cannot be recorded or played.

➡ Second Audio Program (SAP) is not available for all programs. The program you are recording does not have a second audio program (page 44).

➡ When recording from connected equipment, set "External Audio" to "Dual Mono" in the "Audio In" setup (page 103).

➡ Multilingual tracks (main and sub) cannot be recorded on the HDD (when Video Mode On), DVD+RWs, DVD-RWs (Video mode), DVD+Rs, or DVD-Rs (Video mode) or if the recording mode is set in PCM mode. To record both the main and sub sounds on a disc, record on DVD-RWs/DVD-Rs (VR mode). To record on the HDD, set "HDD Recording Format" to "Video Mode Off" in the "Recording" setup (page 109).

➡ If you have connected an audio component to the DIGITAL OUT (COAXIAL) jack and want to change the audio track for the HDD (when "HDD Recording Format" is set to "Video Mode Off" in the "Recording" setup (page 109))/DVD-RWs/DVD-Rs (VR mode) during playback, set "Dolby Digital Output" in the "Audio Out" setup to "Dolby Digital -> PCM" (page 104).

Playback

The recorder does not play any type of disc (except HDD).

➡ The disc is upside down. Insert the disc with the labeled side facing up.

➡ The disc is not correctly inserted.

➡ Moisture has condensed inside the recorder. In this case, if the recorder is on, leave it on (if it is off, leave it off) for about an hour until the moisture evaporates.

➡ If the disc was recorded on another recorder and was not finalized (page 39), the recorder cannot play the disc.

The recorder does not start playback from the beginning.

➡ Resume play was activated (page 53).

➡ You have inserted a DVD whose Title menu or DVD menu automatically appears on the TV screen when it is first inserted. Use the menu to start playback.

The recorder starts playing automatically.

➡ The DVD VIDEO features an auto playback function.

Playback stops automatically.

➡ If the DVD has an auto pause signal, the recorder stops playback at the auto pause signal.

Some functions such as Stop, Search, or Slow-motion Play cannot be performed.

➡ Depending on the DVD, you may not be able to do some of the operations above. See the instruction manual supplied with the disc.

The language for the sound track cannot be changed.

➡ Multilingual tracks are not recorded on the DVD being played.
➡ The DVD VIDEO prohibits the changing of the language for the sound track.
➡ Try changing the language using the DVD VIDEO's menu.

The subtitle language cannot be changed or turned off.

➡ Multilingual subtitles are not recorded on the DVD VIDEO.
➡ The DVD VIDEO prohibits changing of the subtitles.
➡ Try changing the subtitle using the DVD VIDEO's menu.
➡ The subtitles cannot be changed for the titles recorded on this recorder.

The angles cannot be changed.

➡ Multi-angles are not recorded on the DVD VIDEO being played.
➡ You are trying to change the angles when "" does not appear on the TV screen (page 52). To display "" if various angles (multi-angles) for a scene are recorded on the disc, set "Angle Indicator" to "On" in the "Playback" setup (page 111).
➡ The DVD VIDEO prohibits changing angles.
➡ Try changing the angle using the DVD VIDEO's menu.
➡ The angles cannot be changed for the titles recorded on this recorder.
➡ The angles cannot be changed during slow motion playback or when playback is paused.

The DivX video files do not play.

➡ The file is not created in DivX format.
➡ The file has an extension other than ".avi" or ".divx."
➡ The DATA CD (DivX video)/DATA DVD (DivX video) is not created in a DivX format that conforms to ISO9660 Level 1/ Level 2, Romeo, Joliet, or UDF (Universal Disk Format) 1.02, 1.50, 2.00, or 2.01.
➡ The DivX video file format is larger than 720 (width) × 576 (height).

The MP3 audio tracks do not play.

➡ The MP3 audio tracks are not recorded in a format that the recorder can play (page 124).

The JPEG image files do not play.

➡ The JPEG image files are not recorded in a format that the recorder can play (page 124).
➡ Progressive JPEG images cannot be played.

Recording/Timer recording/ Editing

The channel cannot be changed from the channel you are recording.

➡ Set the TV's input source to "TV."

Recording does not start immediately after you press ● REC.

➡ Operate the recorder only after "LOAD," "FORMAT," or "INFO WRITE" disappears from the front panel display.

Nothing was recorded even though you set the timer setting correctly.

➡ There was a power failure during recording.
➡ The recorder's internal clock stopped due to a power failure that lasted for more than 1 hour. Reset the clock (page 100).
➡ The channel was disabled after the timer recording was set. See "Manual CH Setting" on page 102.
➡ Disconnect the AC power cord from the AC outlet, and connect it again.
➡ The program contains copy protection signals that restrict copying.
➡ Another timer setting overlapped the timer setting (page 49).
➡ There is no DVD inside the recorder.
➡ There is not enough disc space for the recording.
➡ The recorder was in the process of dubbing.

Recording does not stop immediately after you press ■ REC STOP.

➡ It will take a few seconds for the recorder to input disc data before recording can stop. On-screen instructions may appear after pressing ■ REC STOP. In this case, follow the on-screen instructions.

Recording does not stop after you press ■ STOP.

➡ Press ■ REC STOP.

Timer recording is not complete or did not start from the beginning.

➡ There was a power failure during recording. If the power recovers when there is a timer recording, the recorder resumes recording. Should the power failure continue for more than 1 hour, reset the clock (page 100).

➡ Another timer setting overlapped the timer setting (page 49).

➡ Disc space was not sufficient.

Contents previously recorded were erased.

➡ Data that is not playable on this recorder but was recorded on a DVD with a PC will be erased from the disc when the disc is inserted.

Recording from the connected equipment with a timer

Nothing was recorded even though you set the Synchro-Recording setting correctly.

➡ You forgot to turn off the connected equipment. Turn off the connected equipment and set the recorder to Synchro-Recording standby mode (page 50).

➡ The recorder was not set to the Synchro-Recording standby mode. Set the recorder to stand by for Synchro-Recording. Make sure the SYNCHRO REC indicator lights up in the front panel display (page 50).

➡ The equipment is not connected to the LINE IN 1 jacks of the recorder.

➡ The recorder is connected to the TV output jack of the connected equipment.

➡ The Synchro-Recording and another timer recording overlap (page 51).

Synchro-Recording does not complete.

➡ The timer setting for the connected equipment overlapped the recorder's timer setting (page 51).

➡ There was a power failure during the recording.

➡ The I/⏻ button was pressed before Synchro-recording started.

The recorder automatically starts recording when the satellite receiver is turned on.

➡ The Synchro Rec function was activated. Turn off the satellite receiver and cancel the Synchro Rec function (page 50).

Dubbing

You dubbed a title, but the title did not appear in the HDD Title List.

➡ The title contained a copy protection signal, so it was moved (page 70).

High-speed dubbing is not possible.

➡ The title cannot be dubbed at high speed (page 71). Even if A-B erasure is performed so that a title does not contain mixed picture sizes, it is still treated as a title with mixed picture sizes.

HDD/DVD Dubbing is not possible.

➡ The title cannot be dubbed (page 70).

Display

The clock has stopped.

➡ Set the clock again (page 100).

➡ The clock stopped due to a power failure that lasted for more than 1 hour. Reset the clock (page 100).

The timer indicator is flashing.

➡ The disc does not have enough space.

➡ Insert a recordable disc into the recorder.

➡ The inserted DVD is protected (page 38).

The clock does not appear in the front panel display when the recorder is turned off.

➡ "Front Panel Display" is set to "Off" in the "Options" setup (page 114).

Remote control

The remote does not function.

➡ Different command modes are set for the recorder and remote. Set the same command mode (page 114). The default command mode setting for this recorder and the supplied remote is **DVD3**. You can check the current command mode in the front panel display (page 114).
➡ The batteries are weak.
➡ The remote is too far from the recorder.
➡ The remote's manufacturer code returned to the default setting when you replaced the batteries. Reset the code (page 22).
➡ The remote is not pointed at the remote sensor on the recorder.

Others

The recorder does not detect a USB device connected to the recorder.

➡ Make sure that the USB device is securely connected to the recorder (page 97).
➡ Check if the USB device or a cable is damaged.
➡ Check if the USB device is on.

Display language on the screen switches automatically.

➡ When "HDMI Control" is set to "On" in the "HDMI Output" setup (page 113), the display language on the screen automatically switches, according to the language setting of the connected TV, if you change the language settings on your TV, etc.

The recorder does not operate properly.

➡ Press down I/⏻ on the recorder for more than five seconds until the recorder turns off. Then, press I/⏻ again to turn on the recorder.
➡ When static electricity, etc., causes the recorder to operate abnormally, turn off the recorder and wait until the clock appears in the front panel display. Then, unplug the recorder and after leaving it off for a while, plug it in again.

The disc tray does not open after you press ⏏ (open/close).

➡ It may take a few seconds for the disc tray to open after you have recorded or edited a DVD. This is because the recorder is adding disc data to the disc.

Any buttons do not function and "LOCKED" appears in the front panel display.

➡ The recorder is locked. Cancel the Child Lock (page 53, 79).

The disc tray does not open and "TRAYLOCKED" appears in the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

"REPAIR" appears in the front panel display.

➡ The recorder's repair function is activated to repair the hard disk drive or disc. Leave the recorder on until "REPAIR" disappears from the front panel display. Some data may be lost even if the repair function is activated.

"E01" appears in the front panel display.

➡ There is a problem in the HDD. Contact your nearest Sony dealer. Note that contents on the HDD may be erased when servicing this unit.

"E02" appears in the front panel display.

➡ The HDD information is incorrect. You cannot make a new recording to the HDD. Format the HDD following the instructions of "Format HDD" (page 99). Note that all of the recorded contents on the HDD will be erased. If this does not fix the problem, contact your nearest Sony dealer.

"HDCP_ERR" appears in the front panel display.

➡ The recorder is connected to an input device that is not HDCP compliant. Connect the equipment that is HDCP compliant (page 18).
Disregard this error message if the output picture is displayed correctly.

Mechanical sounds are heard when the recorder is off.

➡ While the recorder is adjusting the clock for the Auto Clock Set function, operational noises may be heard, even when the power is off. This is not a malfunction.

Resetting the Recorder

You can reset the recorder to all its factory settings.

1 Make sure that the recorder is turned on and remove the disc.

2 Hold down ■ (stop) on the recorder and press I/⏻ on the recorder.
All settings are reset and the recorder turns off.

Notes About This Recorder

On operation

- If the recorder is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the recorder. Should this occur, the recorder may not operate properly. In this case, if the recorder is on, leave it on (if it is off, leave it off) for about an hour until the moisture evaporates.
- When you move the recorder, take out any discs and do not apply shock or vibration to the hard disk drive to avoid damaging the disc or hard disk drive (page 2).

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs, disc/lens cleaners

Do not use cleaning discs or disc/lens cleaners (including wet or spray types). These may cause the recorder to malfunction.

Notes about the discs

- To keep the disc clean, handle the disc by its edge. Do not touch the surface. Dust, fingerprints, or scratches on the disc may cause it to malfunction.

- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.
- Clean the disc with a cleaning cloth. Wipe the disc from the center out.

- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.
- Do not use the following discs.
  - A disc that has a non-standard shape (e.g., card, heart).
  - A disc with a label or sticker on it.
  - A disc that has cellophane tape or sticker adhesive on it.

On replacement of parts

In the event that this unit is repaired, repaired parts may be collected for reuse or recycling purposes.

Specifications

System

Laser: Semiconductor laser
Channel coverage:
NTSC
VHF: 2 to 13
UHF: 14 to 69
CATV: A8 to A1, A to W, W+1 to W+84

Video reception: Frequency synthesizer system
Audio reception: Split carrier system
Antenna out: 75-ohm asymmetrical antenna socket
Timer: Clock: Quartz locked/Timer indication: 12-hour cycle (digital)/ Power back-up duration: 1 hour
Video recording format: MPEG-2, MPEG-1
Audio recording format/applicable bit rate: Dolby Digital 2 ch
256 kbps/128 kbps (in EP, SLP, and SEP mode), PCM

Inputs and outputs

LINE OUT
(AUDIO): Phono jack/2 Vrms/10 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p (NTSC)
LINE IN 1/2/3
(AUDIO): Phono jack/2 Vrms/more than 22 kilohms
(VIDEO): Phono jack/1.0 Vp-p
(S VIDEO): 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.286 Vp-p (NTSC)
DV IN: 4-pin/i.LINK S100
DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms
COMPONENT VIDEO OUT (Y, P_B, P_R):
Phono jack/Y: 1.0 Vp-p,
P_B: 0.7 Vp-p, P_R: 0.7 Vp-p
HDMI OUT: HDMI 19-pin-Standard Connector

USB:
USB jack Type A (For connecting digital still cameras, Memory card reader and USB memory)
USB jack Type B (For connecting PictBridge-compatible printers)

General
Power requirements: 120 V AC, 60 Hz
Power consumption: 42 W
Dimensions (approx.):
430 × 66.5 × 286 mm (width/height/depth) incl. projecting parts
Hard disk drive capacity:
160 GB
Mass (approx.): 4.4 kg
Operating temperature: 5ºC to 35ºC
Operating humidity: 25% to 80%
Supplied accessories:
Power cord (1)
Antenna cable (1)
Audio/video cord (1)
Remote commander (remote) (1)
Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

Notes on MP3 Audio Tracks, JPEG Image Files, and DivX Video Files

About MP3 audio tracks, JPEG image files, and DivX video files

MP3 is an audio compression technology that satisfies certain ISO/MPEG regulations.
JPEG is an image compression technology.
You can play MP3 (MPEG1 Audio Layer 3) format audio tracks and JPEG image files on the HDD or DATA CDs (CD-ROMs/CD-Rs/CD-RWs) or JPEG image files on the HDD or DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs).
DivX® is a video file compression technology, developed by DivX, Inc. This product is an official DivX® Certified product. You can play DATA CDs (CD-ROMs/CD-Rs/CD-RWs) and DATA DVDs (DVD-ROMs/DVD+RWs/DVD+Rs/DVD-RWs/DVD-Rs) that contain DivX video files.
DATA DVDs must be recorded according to ISO9660 Level 1, Level 2, Romeo, Joliet, or UDF (Universal Disk Format) 1.02, 1.50, 2.00*, or 2.01 format for the recorder to recognise the MP3 tracks, JPEG image files, and DivX video files.
DATA CDs must be recorded according to ISO9660 Level 1, Level 2, Romeo, or Joliet format for the recorder to recognise the MP3 tracks, JPEG image files, and DivX video files.
You can also play discs recorded in MultiSession/Border.
See the instructions supplied with the disc drives and the recording software (not supplied) for details on the recording format.

* Not available for MP3 audio tracks.

Note on MultiSession/Border discs

If audio tracks and images in Music CD format or Video CD format are recorded in the first session/border, only the first session/border will be played back.

MP3 audio tracks, JPEG image files, or DivX video files that the recorder can play

The recorder can play the following tracks and files:
– MP3 audio tracks with the extension ".mp3."
– JPEG image files with the extension ".jpeg" or ".jpg."
– Baseline JPEG image files that conform to the Exif 2.2* image files format, and Y:C_B:C_R is 4:4:4, 4:2:2, or 4:2:0.
– DivX video files with the extension ".avi" or ".divx."

* "Exchangeable Image File Format": The file format used by digital still cameras.

Hint

Since a disc with many trees takes longer to start playback, it is recommended that you create albums with no more than two trees.

Notes

- The recorder will play any data with the extension ".mp3," ".jpeg," ".jpg," ".avi," or ".divx" even if they are not in MP3, JPEG, or DivX format. Playing these data may generate a loud noise which could damage your speaker system.
- Depending on the disc, normal playback may not be possible. For example, the picture may be unclear, playback may not appear smooth, the sound may skip, and so on.
- Depending on the disc, playback may take some time to start.
- Some files cannot be played.
- For MP3 audio tracks and DivX video files, the recorder can play up to 99 albums each on a DATA CD or DATA DVD. Up to 99 tracks and files under an album can be played.
- For JPEG image files, the recorder can load up to 99 albums and/or up to 999 files under an album on a DATA CD/DATA DVD or the connected USB device at a time. To view unloaded albums, reload them.
- Proceeding to the next or another album may take some time.
- The image size that can be displayed is limited. The following image sizes can be displayed: width 160–5,120 pixels by height 120–3,840 pixels.
- This recorder supports MP3 audio tracks recorded with a sampling frequency of 32 kHz, 44.1 kHz, and 48 kHz.
- No more than a 1 GB MP3 audio track can be played.
- The recorder does not conform to audio tracks in mp3PRO format.
- The recorder cannot play a DivX video file of a size larger than 720 (width) × 576 (height)/4 GB.
- The recorder may not play a DivX video file when the file has been combined from two or more DivX video files.

Notes on copying JPEG image files/MP3 audio tracks

- You cannot copy JPEG image files/MP3 audio tracks to the HDD if:
  – The total number of JPEG image albums on the HDD exceeds 999.
  – The total number of JPEG image files/MP3 audio tracks under an album exceeds 999.
  – The MP3 audio tracks are 1 GB or larger.
- Note that the size of JPEG image files copied to the HDD may be automatically increased to fit the TV screen.
- You cannot copy JPEG image files onto a DATA DVD finalized on other recorders or devices.
- If a warning message indicating that the HDD is full appears, erase several albums or files to make space. For details on erasing tracks or files, see page 88 or 96.

About i.LINK

The DV IN jack on this recorder is i.LINK-compliant for digital video cameras. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in two directions between equipment having the i.LINK jack, and for controlling other equipment.
i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment. When two or more i.LINK-compatible equipment are connected to this recorder in a daisy chain, operations and data transactions are possible with not only the equipment that this recorder is connected to but also with other devices via the directly connected equipment.
Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

Note

Normally, only one piece of equipment can be connected to this recorder by the i.LINK cable (DV connecting cable). When connecting this recorder to i.LINK-compatible equipment having two or more i.LINK jacks (DV jacks), see the instruction manual of the equipment to be connected.

About the name “i.LINK”

i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by SONY, and is a trademark approved by many corporations. IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronics Engineers.

i.LINK baud rate

i.LINK’s maximum baud rate varies according to the equipment. Three maximum baud rates are defined:
S100 (approx. 100 Mbps*)
S200 (approx. 200 Mbps)
S400 (approx. 400 Mbps)

The baud rate is listed under “Specifications” in the instruction manual of each equipment. It is also indicated near the i.LINK jack on some equipment.
The maximum baud rate of equipment on which it is not indicated such as this unit is “S100.”
When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

* What is Mbps?
Mbps stands for megabits per second, or the amount of data that can be sent or received in one second. For example, a baud rate of 100 Mbps means that 100 megabits of data can be sent in one second.

i.LINK functions on this recorder

For details on how to dub when this recorder is connected to other video equipment having DV jacks, see page 75.
The DV jack on this recorder can only input DVC-SD signals. It cannot output signals.
The DV jack will not accept MICRO MV signals from equipment such as a MICRO MV digital video camera with an i.LINK jack.
For further precautions, see the notes on page 75.
For details on precautions when connecting this recorder, also see the instruction manuals for the equipment to be connected.

Required i.LINK cable

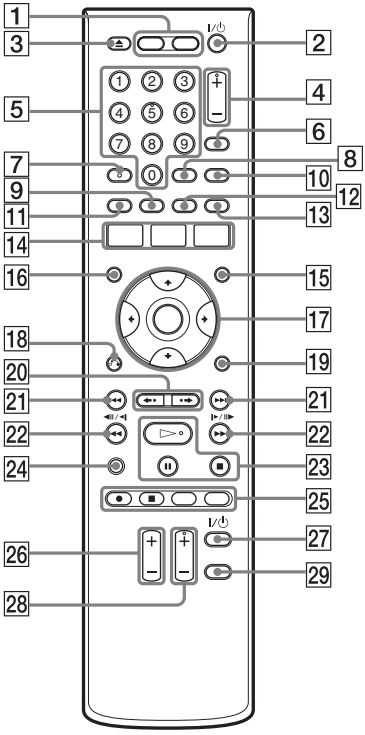
Use the Sony i.LINK 4-pin-to-4-pin cable.

i.LINK and are trademarks.

Guide to Parts and Controls

For more information, see the pages in parentheses.

Remote



1 HDD button (30)
DVD button (30)

2 I/⏻ (on/standby) button (24)

3 ⏏ OPEN/CLOSE button (30)

4 CH (channel) +/– buttons (30)
The + button has a tactile dot*.

5 Number buttons (36, 60)
The number 5 button has a tactile dot*.

6 INPUT (input select) button (50)

7 AUDIO button (54, 79)
The AUDIO button has a tactile dot*.

8 CLEAR button (36, 56, 80, 87)

9 ANGLE button (52, 96)

10 PICTURE ADJUST button (47, 57)

11 SUBTITLE button (54)

12 PLAY MODE button (56, 60, 80, 82)

13 ZOOM button (96)

14 SYSTEM MENU button (47, 71, 77, 83, 89, 100)
TITLE LIST button (32, 52, 63)
TIMER button (45)

15 MENU button (52)

16 TOP MENU button (52)

17 ←/↑/↓/→/ENTER button (24)

18 ↩ RETURN button (24)

19 DISPLAY button (35)

20 ←• REPLAY/ADVANCE •→ (instant replay/instant advance) buttons (54)

21 ⏮ PREV/NEXT ⏭ (previous/next) buttons (54, 79, 86)

22 ◀◀ ◀II ◀I / I▶ II▶ ▶▶ (search/slow/freeze frame) buttons (54, 79, 86)

23 ▷ PLAY button (52, 79, 95)
II PAUSE button (54, 79, 86, 95)
■ STOP button (52, 79, 85, 95)
The ▷ PLAY button has a tactile dot*.

24 DISC SETUP button (38, 39, 42, 99)

25 ● REC button (30)
■ REC STOP button (30)
HDD/DVD DUB button (70)
REC MODE button (30)

26 TV VOL (volume) +/– buttons (22)

27 TV I/⏻ (on/standby) button (22)

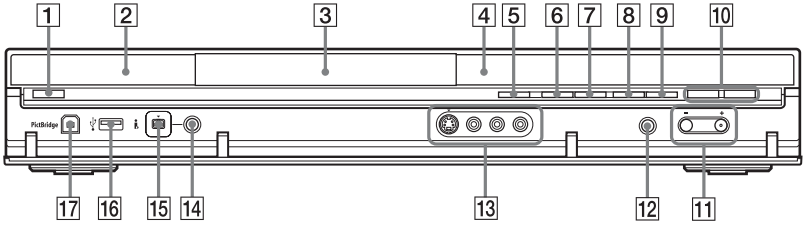
28 TV CH (channel) +/– buttons (22)
The + button has a tactile dot*.

29 TV INPUT (input select) button (22)

* Use the tactile dot as a reference when operating the recorder.

➡continued

Front panel



1 I/⏻ (on/standby) button (24)

2 (remote sensor) (22)

3 Disc tray (30)

4 Front panel display (129)

5 ⏏ (open/close) button (30)

6 ► (play) button (52, 79, 95)
The ► button has a tactile dot*.

7 ■ (stop) button (52, 79, 85, 95)

8 ● REC button (30)

9 ■ REC STOP button (30)

10 HDD button/indicator (30)
DVD button/indicator (30)

11 CHANNEL +/– buttons (30)
The + button has a tactile dot*.

12 INPUT (input select) button (50)

13 LINE 2 IN (S VIDEO/VIDEO/
L(MONO) AUDIO R) jacks (28)

14 ONE-TOUCH DUB button (77)

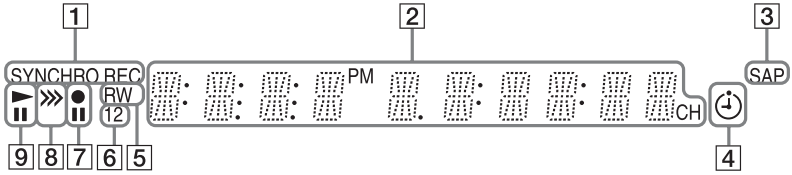
15 DV IN jack (75)

16 USB jack (type A) (83, 89)

17 PictBridge USB jack (type B) (97)

* Use the tactile dot as a reference when operating the recorder.

Front panel display



1 SYNCHRO REC indicator (50)

2 Displays the following:
- Playing time
- Current title/chapter/track/index number
- Recording time/recording mode
- Clock
- Channel

3 SAP indicator (44)

4 Timer indicator (45)

5 Disc type
Lights when a recordable DVD-R or DVD-RW disc is loaded.

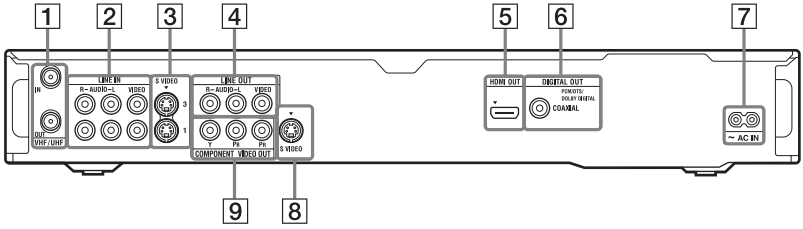
6 Command Mode indicator (114)
Displays the Command Mode of the remote.
When the Command Mode for the recorder is set to DVD3 (default), either "1" or "2" does not appear.

7 Recording status

8 Dubbing direction indicator

9 Playing status

Rear panel



1 VHF/UHF IN/OUT jacks (15, 16)

2 LINE IN 1/3 (R-AUDIO-L/VIDEO) jacks (14, 26, 29)

3 LINE IN 1/3 (S VIDEO) jacks (26)

4 LINE OUT (R-AUDIO-L/VIDEO) jacks (17, 20)

5 HDMI OUT (high-definition multimedia interface out) jack

6 DIGITAL OUT (COAXIAL) jack (20)

7 AC IN terminal (21)

8 LINE OUT (S VIDEO) jack (17)

9 COMPONENT VIDEO OUT (Y, P_B, P_R) jacks (17)

Language Code List

For details, see page 106.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Number	Language (code)	Number	Language (code)	Number	Language (code)
0101	Afar (aa)	0905	Interlingue (ie)	1813	Rhaeto-Romance (rm)
0102	Abkhazian (ab)	0911	Inupiak (ik)	1814	Kirundi (rn)
0106	Afrikaans (af)	0914	Indonesian (in)	1815	Romanian (ro)
0113	Amharic (am)	0919	Icelandic (is)	1821	Russian (ru)
0118	Arabic (ar)	0920	Italian (it)	1823	Kinyarwanda (rw)
0119	Assamese (as)	0923	Hebrew (iw)	1901	Sanskrit (sa)
0125	Aymara (ay)	1001	Japanese (ja)	1904	Sindhi (sd)
0126	Azerbaijani (az)	1009	Yiddish (ji)	1907	Sangho (sg)
0201	Bashkir (ba)	1023	Javanese (jw)	1908	Serbo-Croatian (sh)
0205	Byelorussian (be)	1101	Georgian (ka)	1909	Singhalese (si)
0207	Bulgarian (bg)	1111	Kazakh (kk)	1911	Slovak (sk)
0208	Bihari (bh)	1112	Greenlandic (kl)	1912	Slovenian (sl)
0209	Bislama (bi)	1113	Cambodian (km)	1913	Samoan (sm)
0214	Bengali (bn)	1114	Kannada (kn)	1914	Shona (sn)
0215	Tibetan (bo)	1115	Korean (ko)	1915	Somali (so)
0218	Breton (br)	1119	Kashmiri (ks)	1917	Albanian (sq)
0301	Catalan (ca)	1121	Kurdish (ku)	1918	Serbian (sr)
0315	Corsican (co)	1125	Kirghiz (ky)	1919	Siswati (ss)
0319	Czech (cs)	1201	Latin (la)	1920	Sesotho (st)
0325	Welsh (cy)	1214	Lingala (ln)	1921	Sundanese (su)
0401	Danish (da)	1215	Laothian (lo)	1922	Swedish (sv)
0405	German (de)	1220	Lithuanian (lt)	1923	Swahili (sw)
0426	Bhutani (dz)	1222	Latvian (lv); Lettish	2001	Tamil (ta)
0512	Greek (el)	1307	Malagasy (mg)	2005	Telugu (te)
0514	English (en)	1309	Maori (mi)	2007	Tajik (tg)
0515	Esperanto (eo)	1311	Macedonian (mk)	2008	Thai (th)
0519	Spanish (es)	1312	Malayalam (ml)	2009	Tigrinya (ti)
0520	Estonian (et)	1314	Mongolian (mn)	2011	Turkmen (tk)
0521	Basque (eu)	1315	Moldavian (mo)	2012	Tagalog (tl)
0601	Persian (fa)	1318	Marathi (mr)	2014	Setswana (tn)
0609	Finnish (fi)	1319	Malay (ms)	2015	Tonga (to)
0610	Fiji (fj)	1320	Maltese (mt)	2018	Turkish (tr)
0615	Faroese (fo)	1325	Burmese (my)	2019	Tsonga (ts)
0618	French (fr)	1401	Nauru (na)	2020	Tatar (tt)
0625	Frisian (fy)	1405	Nepali (ne)	2023	Twi (tw)
0701	Irish (ga)	1412	Dutch (nl)	2111	Ukrainian (uk)
0704	Scots Gaelic (gd)	1415	Norwegian (no)	2118	Urdu (ur)
0712	Galician (gl)	1503	Occitan (oc)	2126	Uzbek (uz)
0714	Guarani (gn)	1513	(Afan)Oromo (om)	2209	Vietnamese (vi)
0721	Gujarati (gu)	1518	Oriya (or)	2215	Volapük (vo)
0801	Hausa (ha)	1601	Panjabi (pa)	2315	Wolof (wo)
0809	Hindi (hi)	1612	Polish (pl)	2408	Xhosa (xh)
0818	Croatian (hr)	1619	Pashto (ps);	2515	Yoruba (yo)
0821	Hungarian (hu)		Pushto (ps)	2608	Chinese (zh)
0825	Armenian (hy)	1620	Portuguese (pt)	2621	Zulu (zu)
0901	Interlingua (ia)	1721	Quechua (qu)		

Country/Area Code

For details, see page 110.

Number	Area (Code)	Number	Area (Code)
0118	Argentina (ar)	1325	Malaysia (my)
0121	Australia (au)	1324	Mexico (mx)
0120	Austria (at)	1412	Netherlands (nl)
0205	Belgium (be)	1426	New Zealand (nz)
0218	Brazil (br)	1415	Norway (no)
0301	Canada (ca)	1611	Pakistan (pk)
0312	Chile (cl)	1608	Philippines (ph)
0314	China (cn)	1620	Portugal (pt)
0411	Denmark (dk)	1821	Russia (ru)
0609	Finland (fi)	1907	Singapore (sg)
0618	France (fr)	0519	Spain (es)
0405	Germany (de)	1905	Sweden (se)
0811	Hong Kong (hk)	0308	Switzerland (ch)
0914	India (in)	2023	Taiwan (tw)
0904	Indonesia (id)	2008	Thailand (th)
0920	Italy (it)	0702	United Kingdom (gb)
1016	Japan (jp)	2119	USA (us)
1118	Korea (kr)		

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Printed on 70% or more recycled paper using VOC (Volatile Organic Compound)-free vegetable oil based ink.

3-210-862-**41**(1)

Sony Corporation Printed in Malaysia

http://www.sony.net/